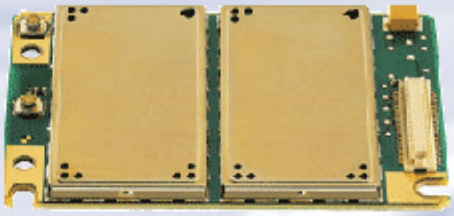
SIEMENS



Getting Started with HC25

Siemens Cellular Engine

Version: 02
DocId: HC25_startup_v02
Products: HC25

User's Guide

User's Guide:	**Getting Started with HC25**
Version:	**02**
Date:	**2007-05-25**
DocId:	**HC25_startup_v02**
Status	**Confidential / Released**
Supported Products:	**HC25**

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1 Introduction

HC25 is the first Siemens wireless module to offer Tri-band UMTS and Quad-Band GSM capability on the same device. The benefit is that the HC25 includes 3.6 Mbit/s HSDPA capability in a UMTS network and also all common mobile connectivity features like voice, short messages, GPRS and EGPRS.

The HC25 modules need to connect to an adequate host device, such as the DSB75 Support Board. Designed to help application manufacturers and system integrators to test and develop their HC25 host application, the DSB75 provides all interfaces and peripherals needed to run the HC25.

The purpose of this document is to guide you through the process of connecting the hardware, installing the software on a Windows XP or Windows Vista system, and, last but not least, making the first data transmission via UMTS and HSDPA.

1.1 Related Documents

Documents supplied with HC25

[1] HC25 Hardware Interface Description
[2] HC25 AT Command Set
[3] HC25 Release Notes
[4] Application Note 02: Audio Interface Design for HC25
[5] Application Note 16: Updating HC25 Firmware
[6] Application Note 22: Using TTY / CTM Equipment with HC25
[7] Application Note 26: Power Supply for Wireless Applications
[8] Application Note 37: GPS Antenna Integration for HC25
[9] Application Note 39: USB Interface Description
[10] Application Note 40: Thermal Solutions for HC25 Applications
[11] Remote SAT User's Guide for HC25

Other related documents

[12] DSB75 Development Support Board Hardware Description
Designed for a wide range of Siemens wireless modules this document is ready for download on the Siemens Website: http://www.siemens.com/wm

1.2 Abbreviations

Abbreviation	Description
APN	Access Point Name
CHAP	Challenge Handshake Authentication Protocol
DSB75	Short for DSB75 Development Support Board
GPRS	General Packet Radio Service
HSDPA	High-Speed Downlink Packet Access
IP	Internet Protocol
ME	Mobile Equipment
MO	Mobile Originated
MT	Mobile Terminated
PAP	Password Authentication Protocol
PDP context	Packet Data Protocol context
TA	Terminal Adapter
TE	Terminal Equipment
UICC	Universal Integrated Circuit Card
UMTS	Universal Mobile Telecommunication System
URC	Unsolicited Result Code

2 Installation and Configuration

2.1 Technical Requirements for Running HC25 on DSB75

- Windows XP or Windows Vista computer, minimum USB 1.1 connector
- HC25 module
- HC25 driver package either contained in
  - the HC25 mass storage = delivery default for HC25 modules shipped from factory;
  - or in an extra ZIP file = driver update packages delivered separately. File name: "HC25_<release>_conman_install.zip" .

  Please refer to Section 2.2 to decide which installation method to choose.
- If drivers from earlier HC25 preview releases and test samples are still installed be sure to uninstall them first. See Section 2.8.4.
- Local Administrator Privileges on the particular Windows computer are required to install, uninstall and use the Siemens Connection Manager.
- If you wish to customize the names of the device drivers displayed in the Windows Device Manager and/or the name of Connection Manager, you can edit the required strings in some of the provided files before installing the driver package. For details see Section 2.10.
- Appropriate hardware platform, e.g. the reference evaluation kit delivered by Siemens for testing and developing HC25 applications:
  - DSB75 Support Board providing the application interface between the HC25 USB port and the computer's USB port.
  - Adapter for mounting the HC25 module onto the DSB75
  - 9 to 15 Volts power supply applied at the DSB75 for powering up the DSB75 and the connected HC25 module
  - 1 mini antenna cable (50 Ohms) from the RF antenna connector (Hirose U.FL) on the HC25 module to the Hirose U.FL on the DSB75; 1 external RF antenna connecting to the SMA connector of the DSB75 (product name: SMARTEQ MiniMag), both delivered with DSB75
  - Metal plate for grounding the external RF antenna, min. 20 cm x 20 cm
  - Optional: Handset, eg. Handset for Siemens products from Votronic delivered with DSB75
- USB cable
- Appropriate host application to control the USB ports under Windows, for example Hyperterminal integrated in Windows XP.
- UICC card

- Service provider settings for access to the GPRS and HSDPA services, as a rule the following:
  - APN (network operator specific Name of Access Point that connects the GSM network to the Internet)
  - Primary and secondary DNS
  - IP address (DHCP or static)
  - QoS settings
  - User name and password

- HC25 offers two ways to access the GPRS or HSDPA networks: either the Siemens Wireless Ethernet Adapter controlled by the Siemens Connection Manager or a dial-up network connection set up via the Siemens HSDPA USB Modem. For details see Section 3.10.

- Make sure to operate the HC25 always with the UICC card inserted in the card reader and a valid SIM PIN entered. This is because most AT commands require SIM PIN authentication.

2.2 Choosing the Best Installation Strategy

The sequence of the installation steps depends on where the supplied driver package is located:

1. HC25 modules shipped from factory have the driver package located on the mass storage. Thus, the standard installation procedure is designed to be launched directly from the mass storage.
   Overview of installation steps: First connect the HC25 module to the DSB75 and start the computer (see Section 2.3). Then install the Siemens Connection Manager to prepare the driver installation (see Section 2.4.1 for Windows XP or Section 2.5.1 for Windows Vista). Finally install the composite device drivers (see Section 2.4.2 for Windows XP or Section 2.5.2 for Windows Vista).

2. Latest driver updates are contained in the "HC25_<release>_conman_install.zip" file, usually ready for download from http://www.siemens.com/wm. If you wish to update to the latest driver versions, you have the following options:

   - Installing the drivers from the mass storage
     Overview of installation steps: First uninstall the existing drivers from the Windows computer. Switch off or unplug the module. Switch on or replug the module. Delete all old files located in the mass storage and replace them with the new files, using exactly the same directory tree. Switch off or unplug the module. Switch on or replug the module. Install the Siemens Connection Manager and the composite device drivers from the mass storage.
     If the HC25 module is intended to be inserted into more than one device take care that the mass storage always contains the latest drivers.
     See Section 2.9.3 for details.

   - Installing the drivers from any folder inside the Windows system
     Overview of installation steps: First uninstall the existing drivers from the Windows computer. Switch off or unplug the module. Install the Siemens Connection Manager. Switch on or replug the module. Install the composite device drivers.
     See Section 2.9.2 for details.

2.3 Installing the Hardware

To properly connect the HC25 module and all accessories to the DSB75 Support Board follow these steps:

- Check that all switches of the DSB75 Support Board are set as described in Chapter 5. See also Figure 6 which shows an exploded view of all parts.
- Connect the one end of the mini antenna cable to the RF antenna connector (Hirose U.FL) located on the module's top side.
- Mount the HC25 module upside down onto the 50-pin board-to-board connector of the adapter board. Use the supplied M2 screws and nuts to screw the module to the adapter.
- Attach the adapter board to the 80-pin header located on the DSB75. Take gentle care that all pins are aligned correctly, then press down evenly on the adapter board until it is firmly seated. Use the supplied M3 screw and bolt to secure the adapter board to the DSB75 Support Board.
- Connect the other end of the mini antenna cable to the Hirose U.FL connector of the DSB75.
- Screw the external antenna (MiniMag) into the SMA connector on the DSB75. To improve the antenna performance use the metal plate for grounding. The external antenna should be positioned in the center of the metal plate.
- Connect the Western plug of the handset to the Western jack on the DSB75.
- Connect the power cables to the red (BATT+) and black (Ground) connectors of the DSB75.
- Plug the USB cable to the computer's USB port and to the USB port of the DSB75. Press the IGT key of the DSB75 to switch on the HC25 module. Start your Windows computer.
- To continue see Section 2.4 for Windows XP or Section 2.5 for Windows Vista.

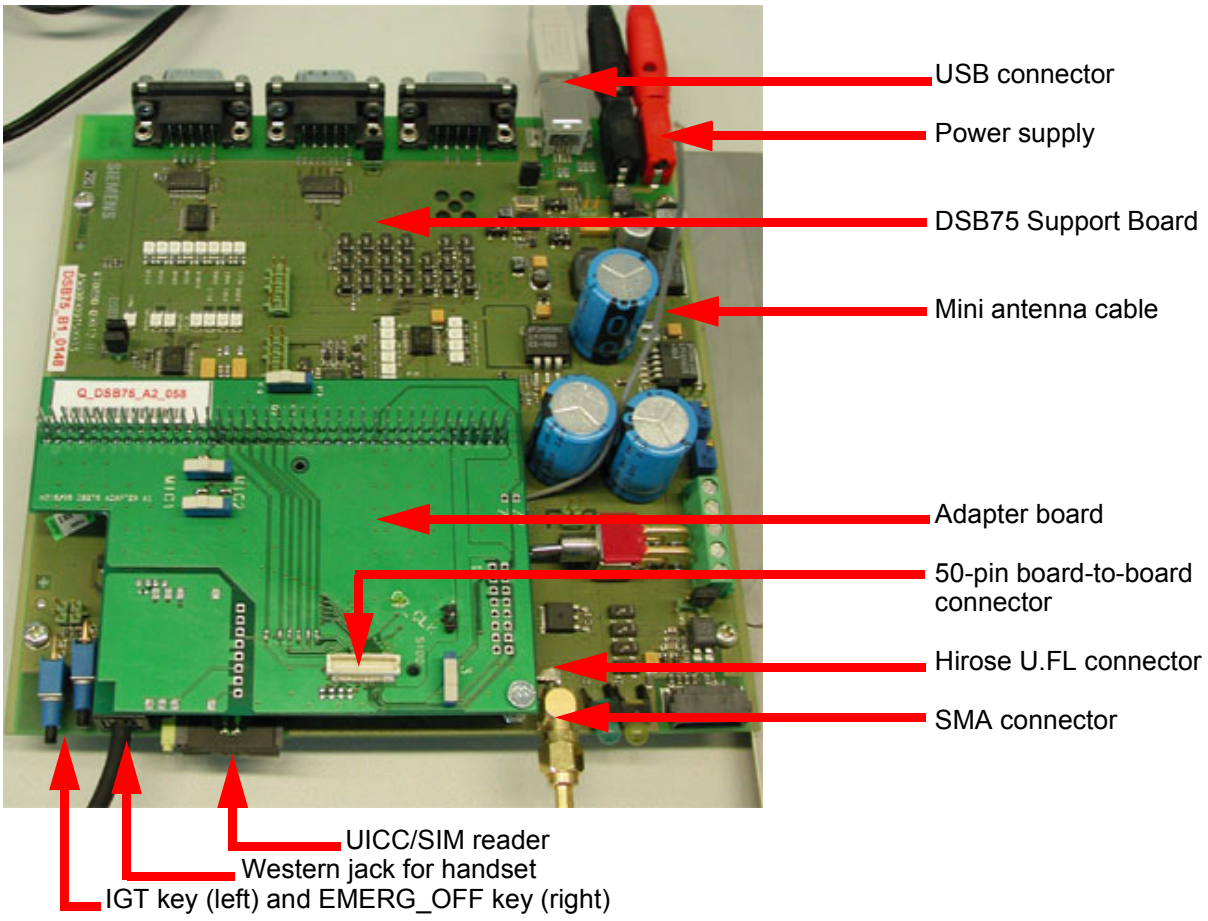


Figure 1: DSB75 Support Board with mounted adapter board and mini antenna cable

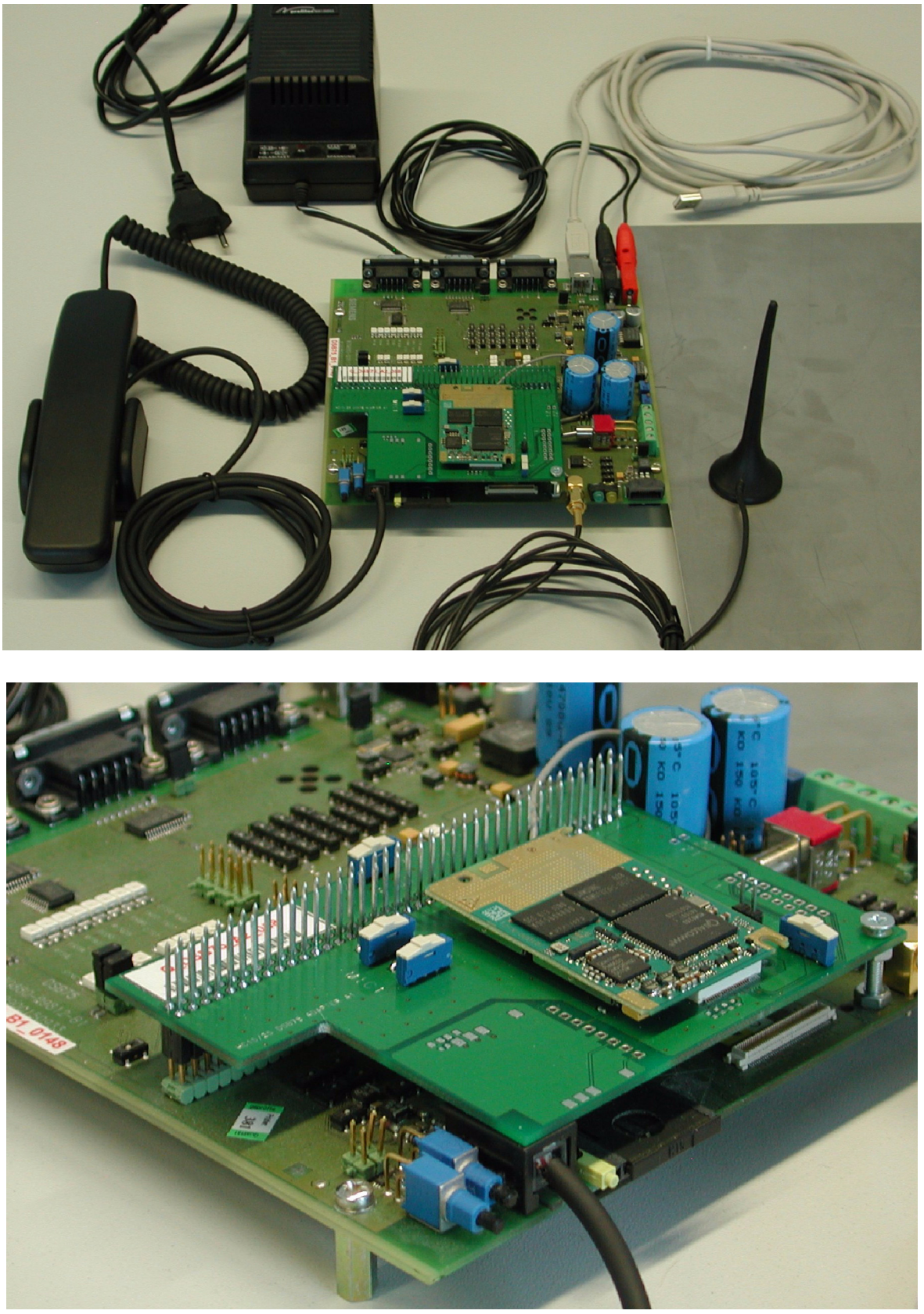


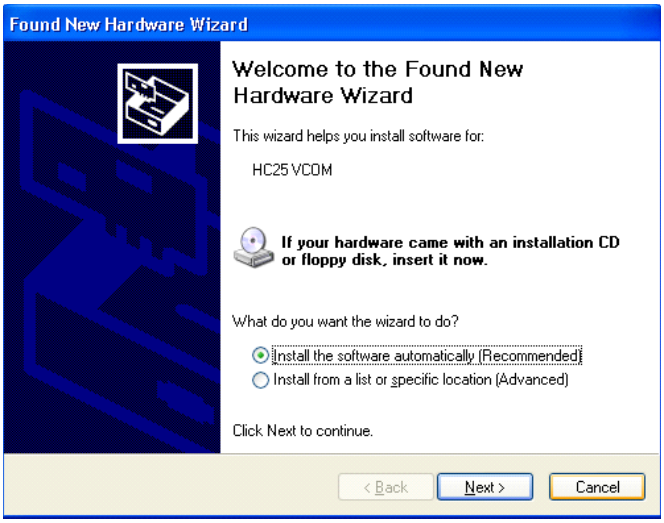
Figure 2: DSB75 Support Board with HC25 module and accessories connected

2.4 Installation on Windows XP

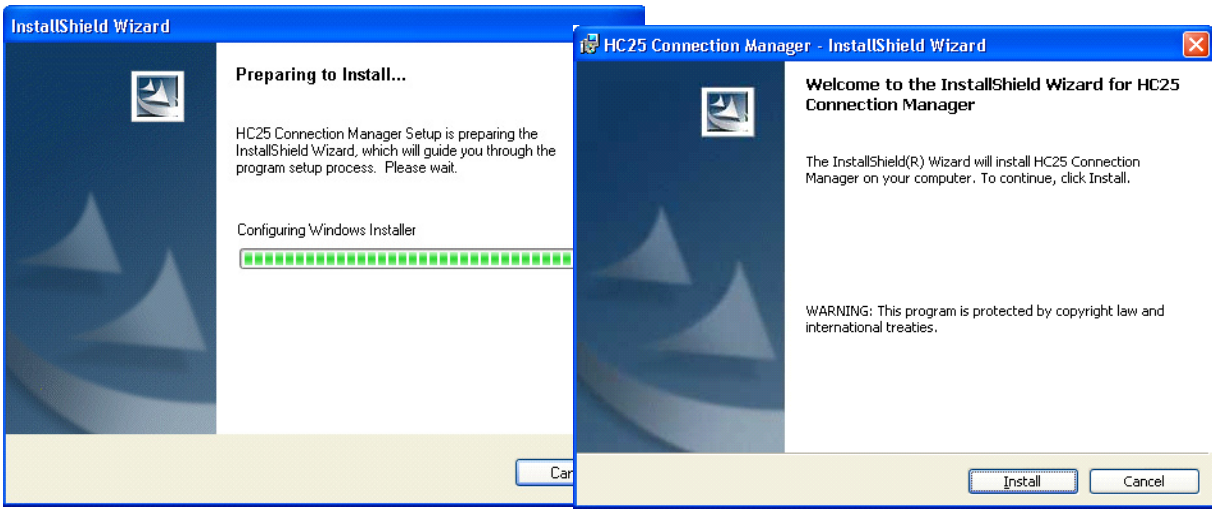
2.4.1 Installing Connection Manager and Preparing Driver Installation on Windows XP

After switching on or plugging the module, you will see the *New Hardware Found Wizard* coming up three times, requesting you to install the software for HC25 VCOM, HC25 NET and HC25 Modem. Click *Cancel* in each dialog.

At the same time the module enumerates as mass storage device in your Windows XP system, showing up as a *Removable Disk* assigned to the next free drive in the Windows Explorer. An additional Windows system tray icon also indicates the mass storage device.

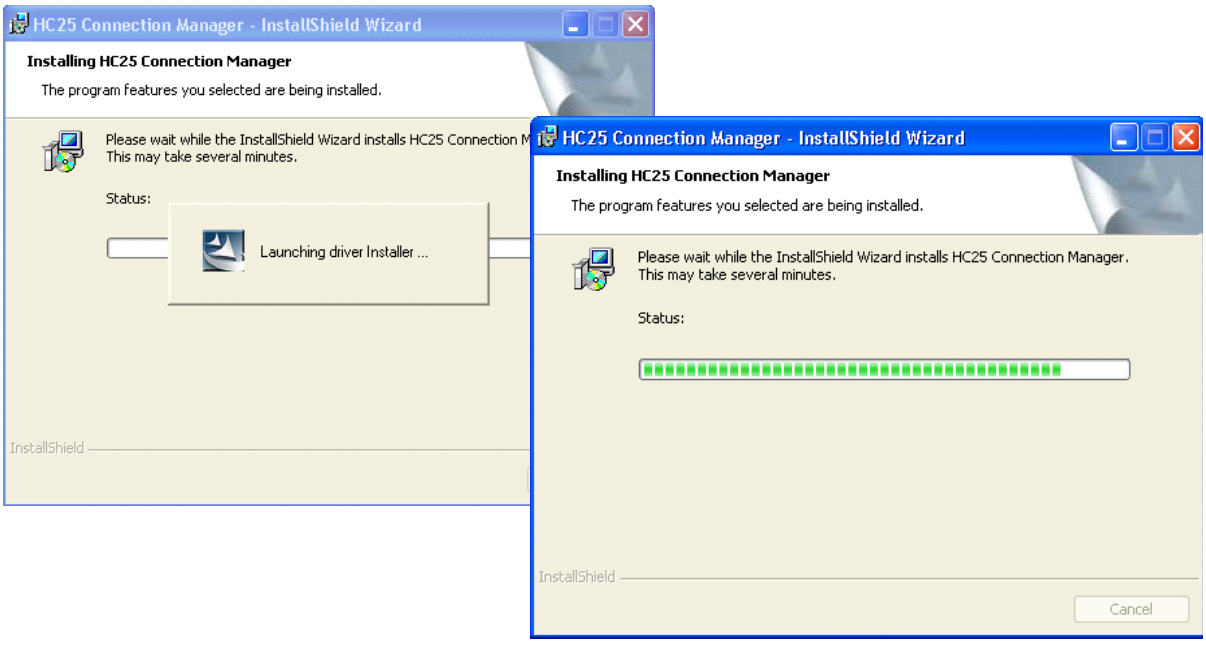

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
HC25 VCOM
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

The wizard's error message that pops up in the Windows taskbar shall be ignored. The installation will proceed automatically.
Note: If the installation fails to start automatically after you have canceled the three *New Hardware Found Wizards* simply navigate to the mass storage drive (= Removable Disk in the Windows Explorer) and double-click the provided "autorun.exe" file.


InstallShield Wizard
Preparing to Install...
HC25 Connection Manager Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Configuring Windows Installer
HC25 Connection Manager - InstallShield Wizard
Welcome to the InstallShield Wizard for HC25 Connection Manager
The InstallShield(R) Wizard will install HC25 Connection Manager on your computer. To continue, click Install.
WARNING: This program is protected by copyright law and international treaties.
Install
Cancel

Please wait a brief moment, then press *Install* to start the installation of the Connection Manager.

The progress of the installation will be indicated as illustrated below. It is possible that there are up to 3 warning messages saying that the drivers are not digitally signed. Please ignore the messages and press *Continue anyway*.


HC25 Connection Manager - InstallShield Wizard
Installing HC25 Connection Manager
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs HC25 Connection M
This may take several minutes.
Status:
Launching driver Installer ...
InstallShield
HC25 Connection Manager - InstallShield Wizard
Installing HC25 Connection Manager
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs HC25 Connection Manager.
This may take several minutes.
Status:
InstallShield
Cancel

Now the installation of the Connection Manager is completed, and the driver software for the composite device is preinstalled. The last installation dialog closes automatically.

See Section 2.4.2 to continue.

2.4.2 Installing USB and Ethernet Drivers on Windows XP

HC25 is installed as a composite device that comprises three virtual devices, one by one added to your Windows XP system:

- Siemens HC25 USB Com Port driver
- Siemens HC25 Wireless Ethernet Adapter driver
- Siemens HC25 HSDPA USB Modem driver

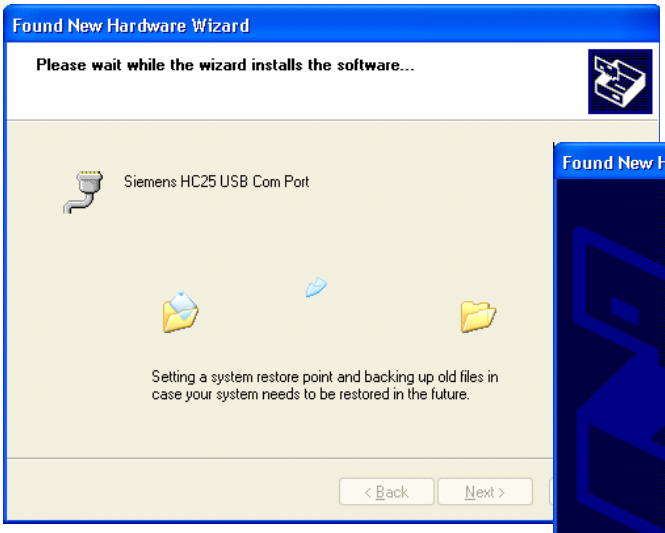
During the installation, the HC25 USB interface will be assigned two virtual COM ports, one for the virtual modem port and one for the virtual application port. Windows will automatically allocate the next available COM port to each virtual interface.

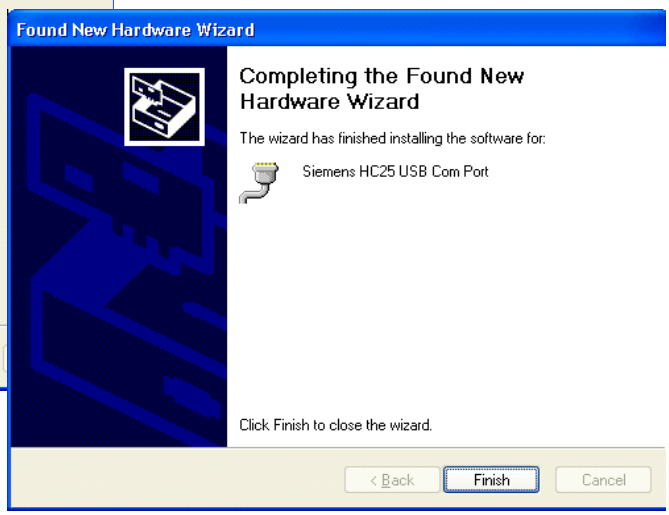
Once the Siemens Connection Manager installation has completed Windows detects the HC25 as a new USB composite device.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Siemens HC25 USB Com Port
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

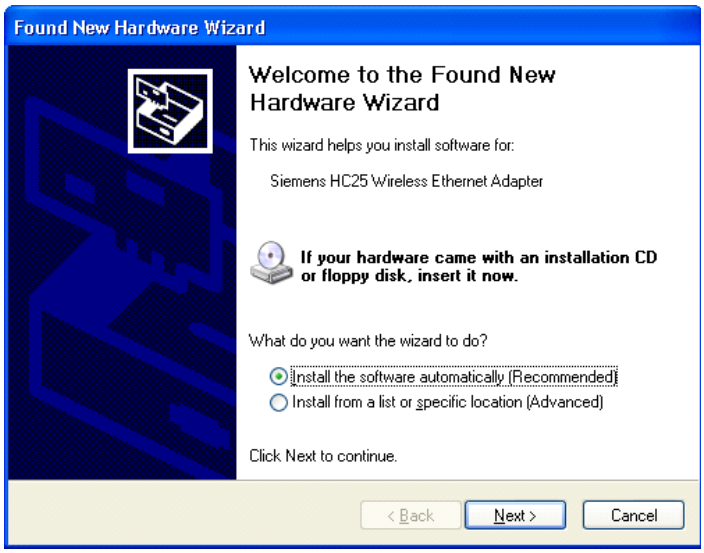
The *Found New Hardware Wizard* will start. Click *Next* to proceed with the installation of the "Siemens HC25 USB Com Port".

The progress of the driver installation is indicated.
There might be a warning message saying that the driver is not digitally signed. Please ignore the message and press *Continue anyway*.

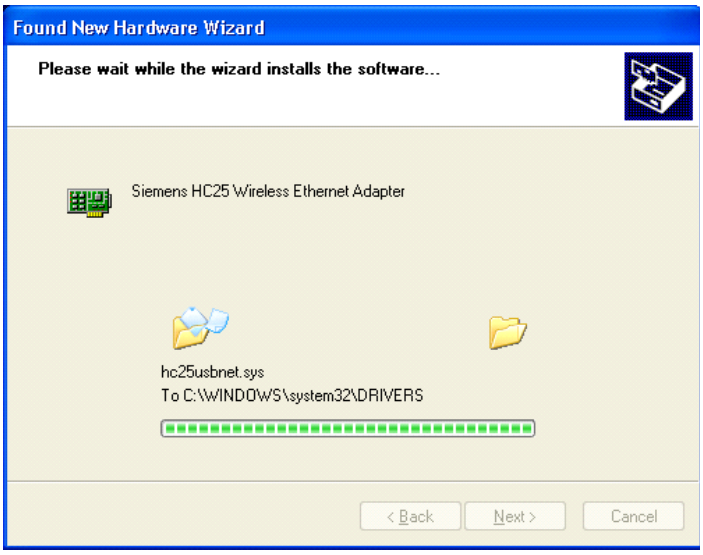

Found New Hardware Wizard
Please wait while the wizard installs the software...
Siemens HC25 USB Com Port
Setting a system restore point and backing up old files in case your system needs to be restored in the future.
< Back
Next >


Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Siemens HC25 USB Com Port
Click Finish to close the wizard.
< Back
Finish
Cancel

Click *Finish* to complete the installation of the "Siemens HC25 USB Com Port".

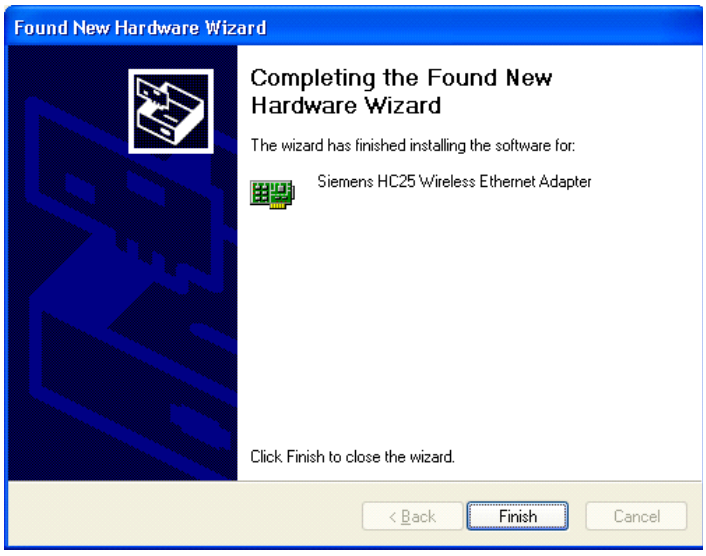

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Siemens HC25 Wireless Ethernet Adapter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Now the installation of the "Siemens HC25 Wireless Ethernet Adapter" will start. Click *Next*.

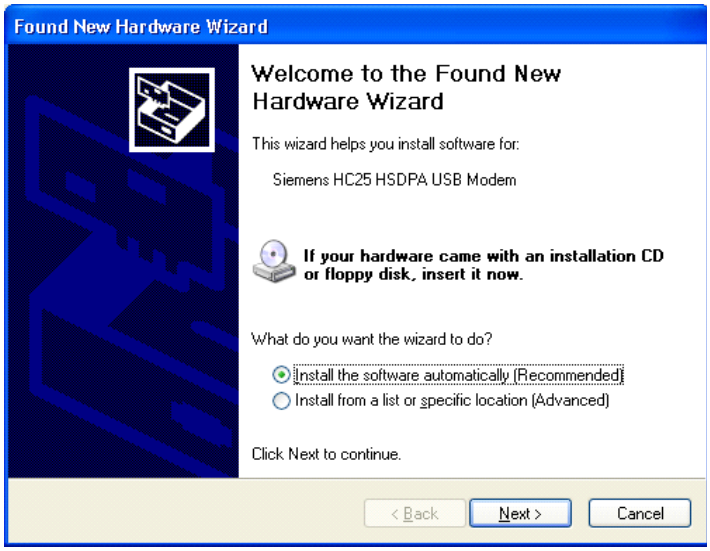


The progress of the driver installation is indicated.

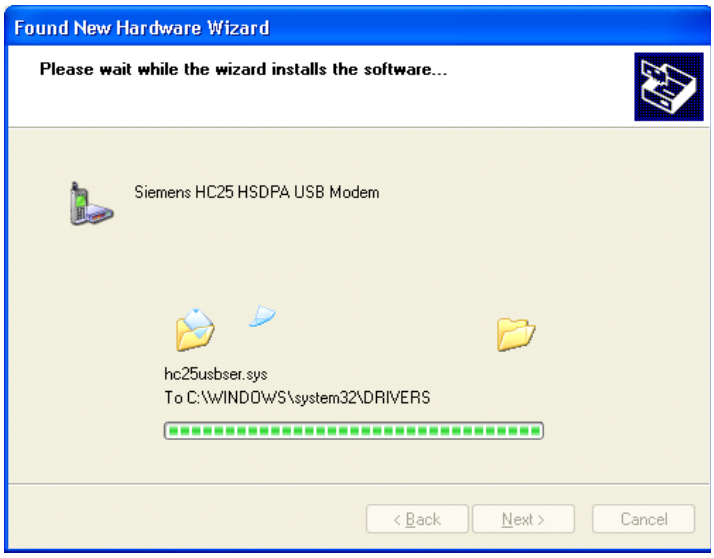
There might be a warning message saying that the driver is not digitally signed. Please ignore the message and press *Continue anyway*.


Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Siemens HC25 Wireless Ethernet Adapter
Click Finish to close the wizard.
< Back
Finish
Cancel

Press *Finish* to complete the "Siemens HC25 Wireless Ethernet Adapter" installation.

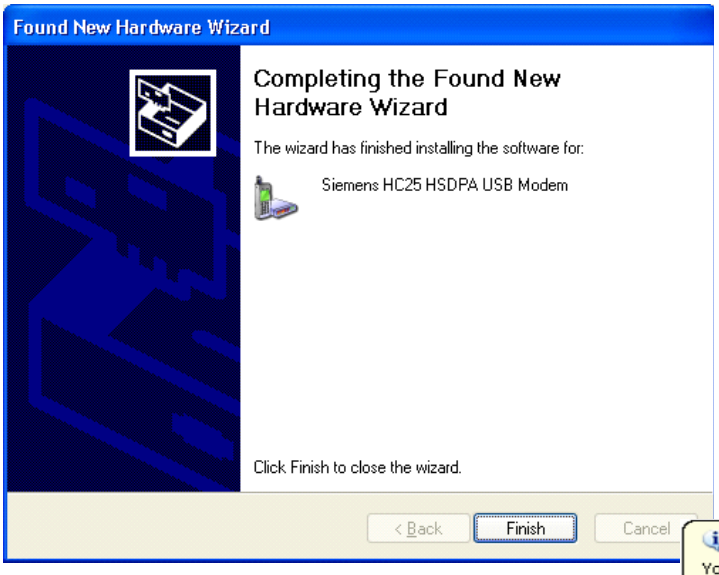

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Siemens HC25 HSDPA USB Modem
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Now the installation of the "Siemens HC25 HSDPA USB Modem" will start. Click *Next*.



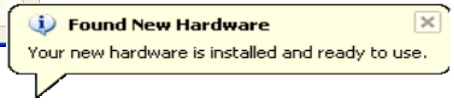
The progress of the driver installation is indicated.

There might be a warning message saying that the driver is not digitally signed. Please ignore the message and press *Continue anyway*.


Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Siemens HC25 HSDPA USB Modem
Click Finish to close the wizard.
< Back
Finish
Cancel

Press *Finish* to complete the "Siemens HC25 HSPDA USB Modem" installation.

At this point the installation of all three virtual devices is completed. Windows XP notifies you that the hardware is ready to use.

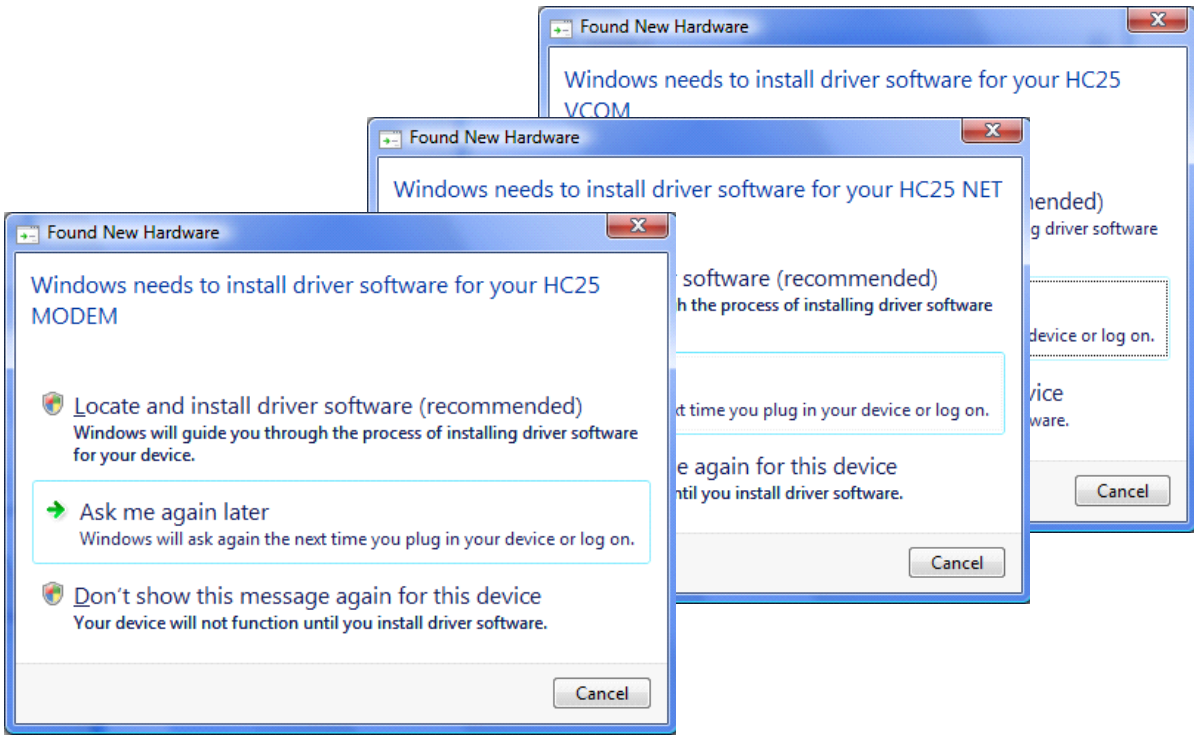


2.5 Installation on Windows Vista

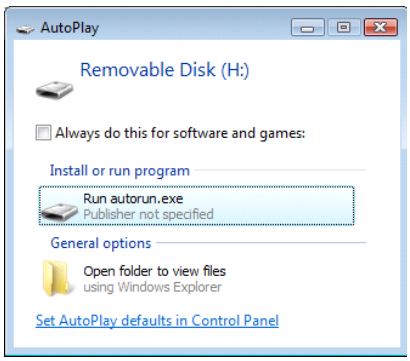
2.5.1 Installing Connection Manager and Peparing Driver Installation on Windows Vista

If you plug the HC25 module and install the HC25 drivers the first time, the *New Hardware Found* wizard will pop up three times requesting you to install the software for the virtual devices HC25 VCOM, HC25 NET and HC25 MODEM. Click *Cancel* in each dialog. If you reinstall the drivers these dialogs will usually not appear.

At the same time the module enumerates as a mass storage device in your Windows Vista system, showing up as a *Removable Disk* assigned to the next free drive in the Windows Explorer. An additional Windows system tray icon also indicates the mass storage device.


Found New Hardware
Windows needs to install driver software for your HC25 VCOM
Found New Hardware
Windows needs to install driver software for your HC25 NET
Found New Hardware
Windows needs to install driver software for your HC25 MODEM
Locate and install driver software (recommended)
Windows will guide you through the process of installing driver software for your device.
Ask me again later
Windows will ask again the next time you plug in your device or log on.
Don't show this message again for this device
Your device will not function until you install driver software.
Cancel

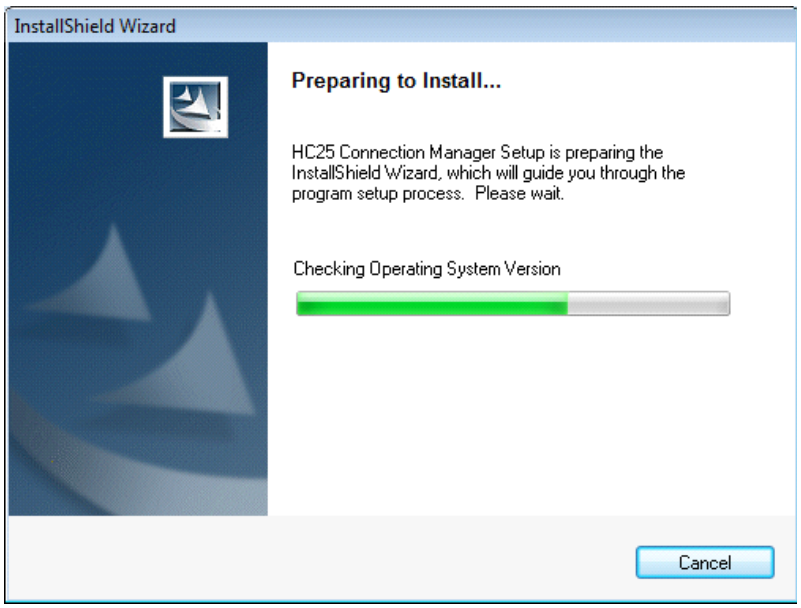
If *Autoplay* is enabled on the computer you will be prompted to select "Run autorun.exe".
If the installation does not start automatically, due to the specific computer configuration, navigate to the mass storage drive and double-click the provided "autorun.exe" file.



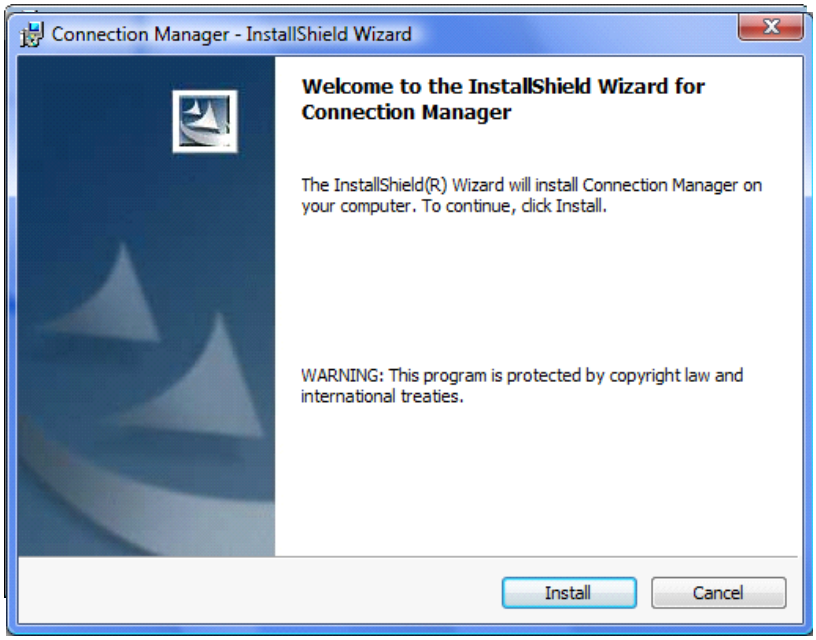
The autorun.exe icon starts to blink in the task bar of Windows Vista while showing this message:

"autorun.exe is requesting your permission"

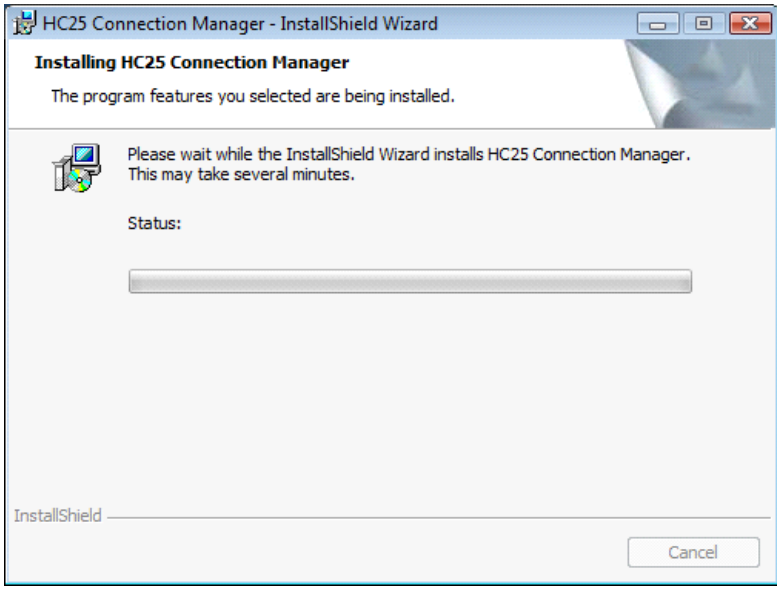
Please click on the icon. A popup window "User Account Control" will show: "An unidentified program wants access to your computer". Please press "Allow" to start the HC25 installer on Windows Vista.


InstallShield Wizard
Preparing to Install...
HC25 Connection Manager Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Checking Operating System Version
Cancel

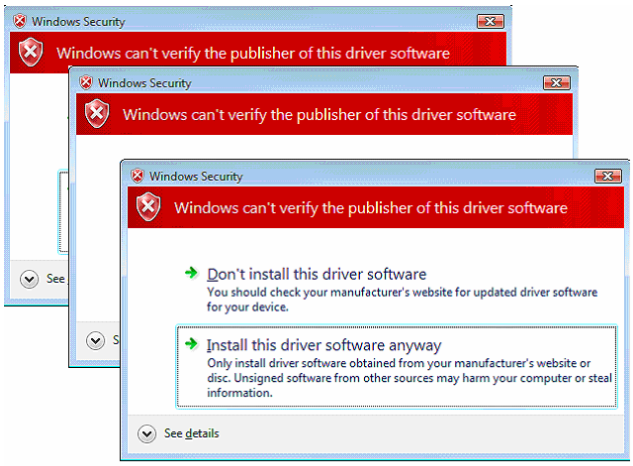
The installer will start to prepare the installation.


Connection Manager - InstallShield Wizard
Welcome to the InstallShield Wizard for Connection Manager
The InstallShield(R) Wizard will install Connection Manager on your computer. To continue, click Install.
WARNING: This program is protected by copyright law and international treaties.
Install
Cancel

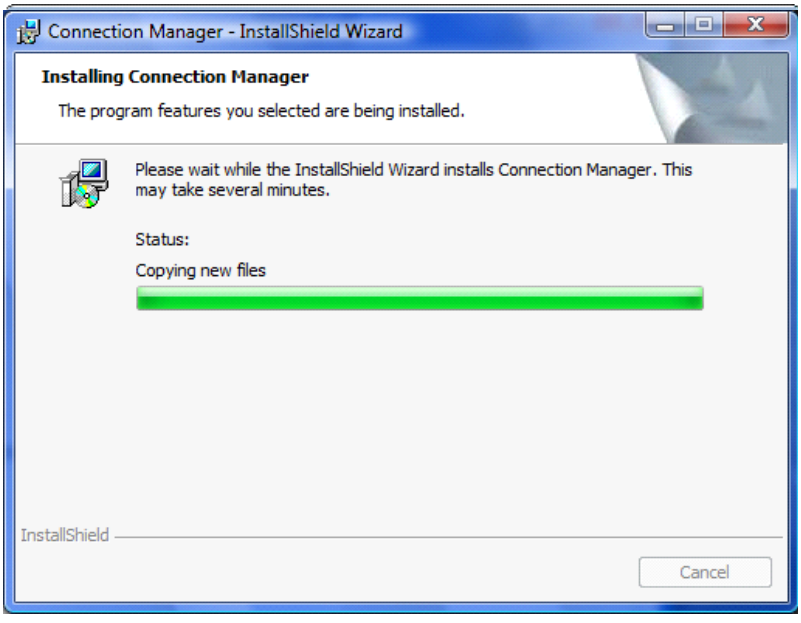
Now the HC25 Connection Manager can be set up. Press *Install*.


HC25 Connection Manager - InstallShield Wizard
Installing HC25 Connection Manager
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs HC25 Connection Manager. This may take several minutes.
Status:
InstallShield
Cancel

The progress of the installation is indicated.


Windows Security
Windows can't verify the publisher of this driver software
Windows Security
Windows can't verify the publisher of this driver software
Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

It is possible that there are up to 3 warning messages saying that the drivers are not digitally signed. Please ignore the messages and select the option *Install this driver software anyway.*


Connection Manager - InstallShield Wizard
Installing Connection Manager
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs Connection Manager. This may take several minutes.
Status:
Copying new files
InstallShield
Cancel

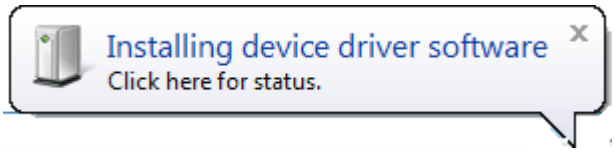
The HC25 Connection Manager setup is completed. The last installation dialog box closes automatically.
See Section 2.5.2 to continue.

2.5.2 Installing USB and Ethernet Drivers on Windows Vista

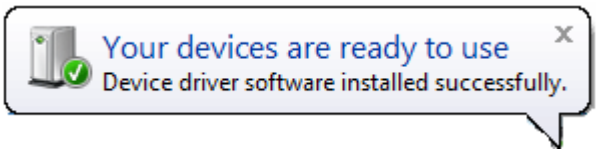
Once the HC25 Connection Manager installation has completed the HC25 will be set up as a composite device comprising three virtual devices:

- Siemens HC25 USB Com Port driver
- Siemens HC25 Wireless Ethernet Adapter driver
- Siemens HC25 HSDPA USB Modem driver

An icon will show up in the Windows Vista task bar to indicate the progress of the driver installation.



Finally, the icon indicates that all devices are ready to use.



2.6 Special Installation Notes

If the installation does not work as expected, additional steps may be required, usually depending on the configuration of the Windows XP or Windows Vista computer.

HC25 does not show up as removable disk

- If the HC25 is not visible as removable disk (mass storage device) when connected and switched on the first time, it is possible that the computer is configured to search the Internet for Windows updates. As a result, Windows is waiting for additional user action.
- To avoid this scenario, it is recommended to switch off this option before trying to install the HC25.

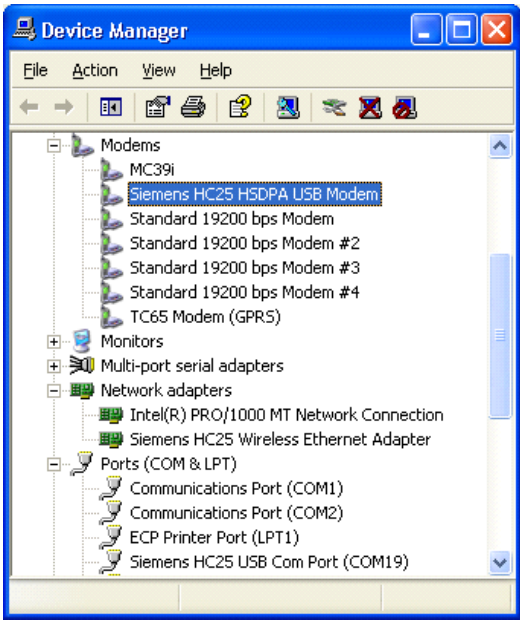
Connect to Windows Update
When you connect a new device, how do you want Windows to connect to the Windows Update Web site to search for a matching driver?
If my device needs a driver, go to Windows Update without asking me
Ask me to search Windows Update every time I connect a new device
Never search Windows Update for drivers
Using Windows Update requires a connection to the Internet.
Read our privacy policy
OK
Cancel

Connection Manager installed, but driver installation does not start

- If the Connection Manager installation completes successfully as explained in Section 2.4.1 (Windows XP) or Section 2.5.1 (Windows Vista), but the driver installation does not start as shown in Section 2.4.2 (Windows XP) or Section 2.5.2 (Windows Vista), it is possible that the HC25 has failed to change from mass storage device to composite device functionality.
- In this case, please stop the mass storage function manually. To do so, right-click the “Removable Disk“ drive and select *Eject*. The installation should proceed according to Section 2.4.2 or Section 2.5.2.
  If the HC25 still shows up as removable device, point to the associated Windows system tray icon, and select *Stop* from the resulting *Safely Remove Hardware* box. Then unplug and replug the USB cable.

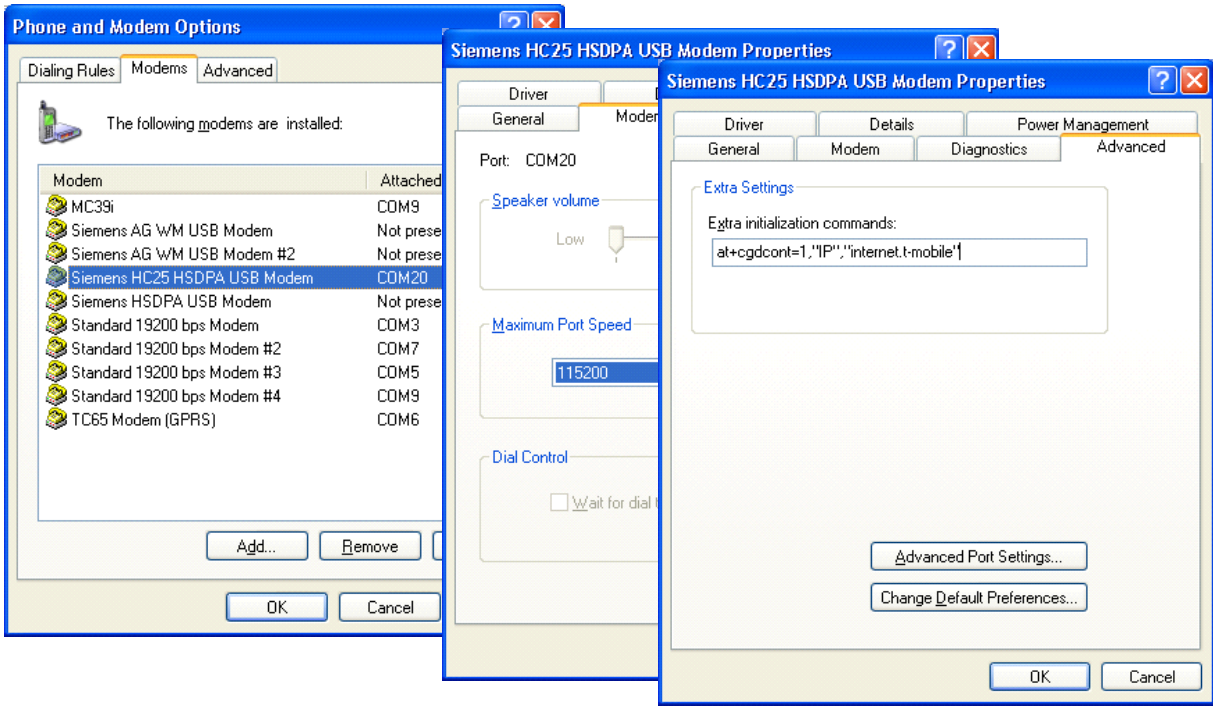
2.7 Installed Devices and Tools on Windows XP, Windows Vista

After successful installation, the HC25 module is set up as composite device comprising the virtual devices listed below. On Windows XP and Windows Vista, you can use the *Device Manager* to check that all components are properly installed and configured.



Siemens HC25 HSDPA USB Modem

- AT command and data interface, also referred to as "Modem" interface if queried using the AT^SQPORT command.
- Intended particularly for HSDPA and GPRS data connections.
- The virtual COM port Windows has assigned to this interface is listed in the *Device Manager* under *Modems* and under *Control Panel* | *Phone and Modem Options.*
- The port number can be gathered from the property pages. This COM port can be used to set up dial-up network connections. The bit rate set by default on the modem property page is not relevant for USB and can be left unchanged. On the *Advanced tab* you can put the command string used to define the PDP context for your GPRS / HSDPA provider. See also Section 3.7.



Siemens HC25 USB Com Port

- AT command interface, also referred to as "Application" interface if queried using the AT^SQPORT command.
- Mainly intended for controlling the HC25 module, for receiving URCs, also for sending, receiving, writing and reading short messages. Not intended as data interface for HSDPA and GPRS.
- The virtual COM port Windows has assigned to this port is listed in the *Device Manager* under *Ports (COM&LPT)*.

Siemens HC25 Wireless Ethernet Adapter

- Wireless network adapter intended for HSDPA and GPRS data connections.
- Listed in the *Device Manager* under *Network adapters*.
- Software controlled by the Siemens Connection Manager. To open the program in Windows XP, click *Start*, point to *Programs*, select *Siemens*, select *HC25 HSDPA USB Modem* and click *HC25 Connection Manager*. See Section 3.10 and Section 3.10.1 (Windows XP) or Section 3.10.2 (Windows Vista) for details on how to set up a connection.

2.8 Uninstalling Drivers and Siemens Connection Manager

The steps required to remove the installed HC25 components vary depending on whether the module switched on or off.

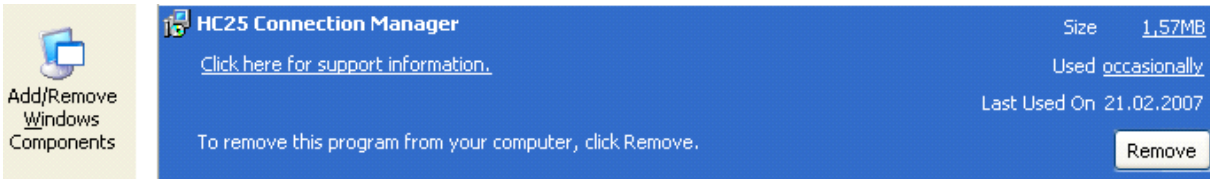
The procedures are almost the same for Windows XP and Windows Vista except for the minor differences described below.

2.8.1 Uninstalling Components if HC25 Connects to Windows XP

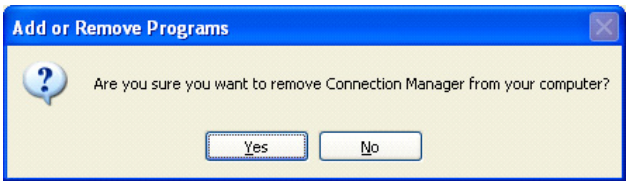
1. Ensure that the module is connected to the computer's USB port and switched on.

2. Close all HC25 applications, for example the HC25 Connection Manager or terminal program(s) connected to the virtual USB port(s).

3. Open the *Control Panel.* Click *Add or Remove Programs* and select *HC25 Connection Manager*. Press *Remove* to select the uninstaller of the Connection Manager and the HC25 drivers.



4. Press *Yes* to start the uninstaller.



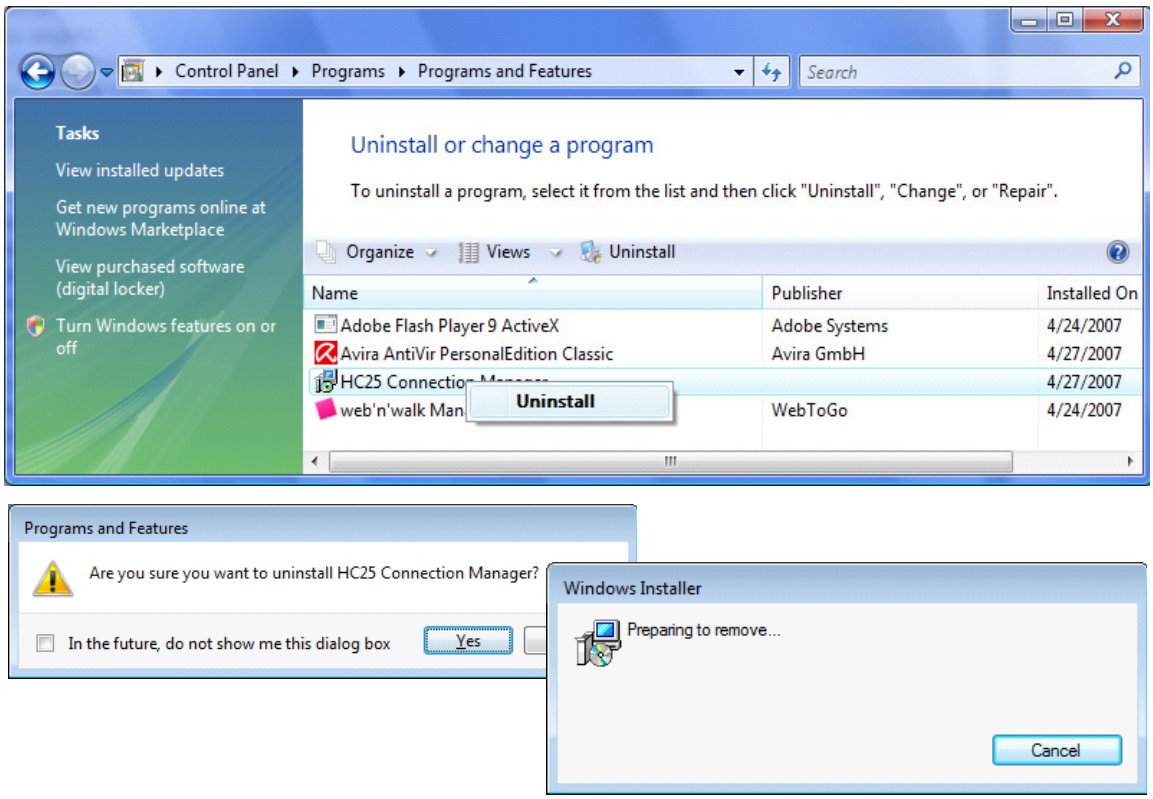
5. The HC25 Connection Manager and all HC25 drivers will be removed.

2.8.2 Uninstalling Components if HC25 Connects to Windows Vista

1. Ensure that the module is connected to the computer's USB port and switched on.

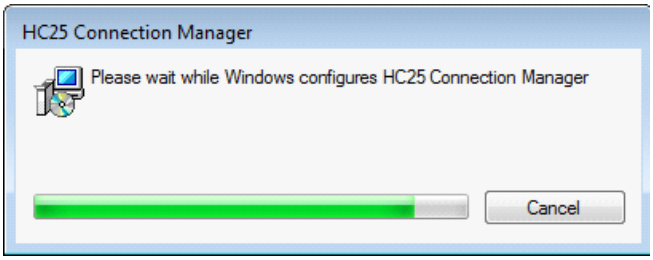
2. Close all HC25 applications, for example the HC25 Connection Manager or the host application(s) connected to the virtual USB port(s).

3. Open the *Control Panel*. Click *Programs and Features* and point to the *HC25 Connection Manager*. Double-click or right-click *HC25 Connection Manager* to start the uninstaller, then click *Yes* to confirm the resulting uninstall message.

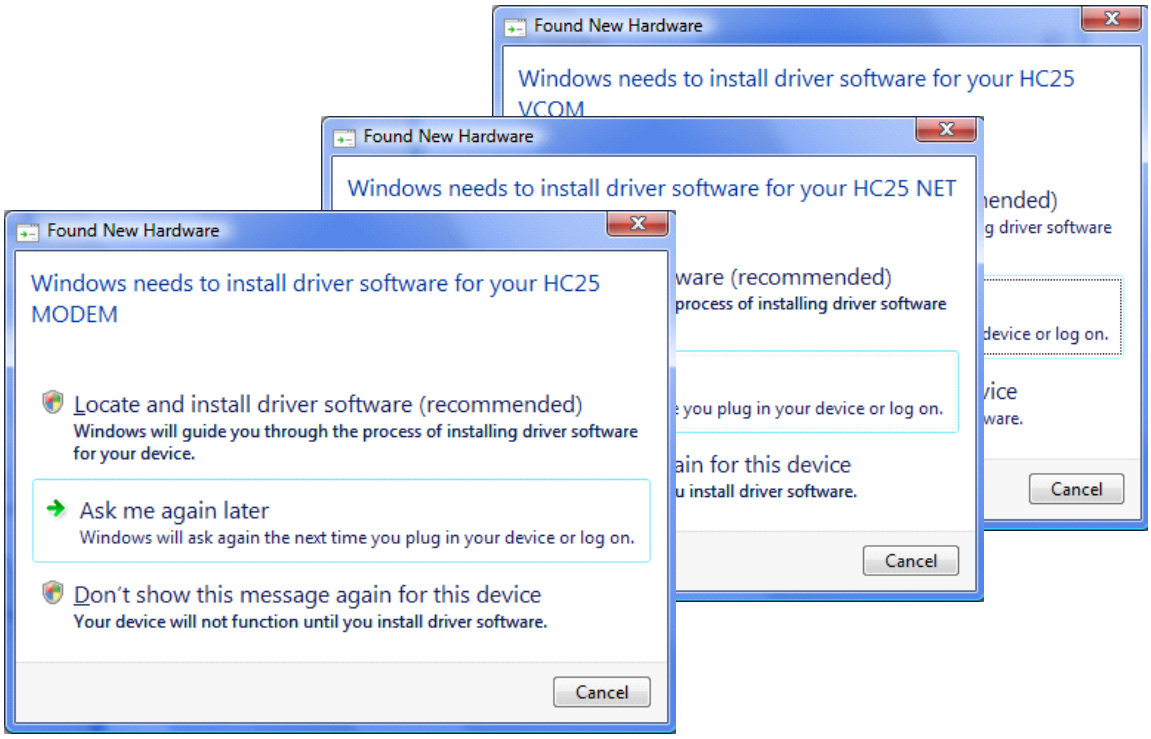


4. A popup window named *User Account Control* will display the message "An unidentified program wants access to your computer". Press the *Allow* button to launch the uninstaller on Windows Vista.

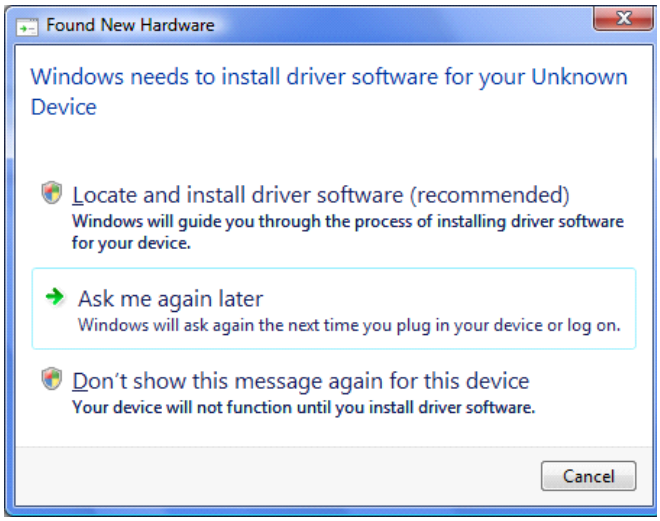
5. Wait a brief moment until the HC25 Connection Manager closes and all drivers are removed.



6. The *Found New Hardware* wizard will pop up three times because, after driver clean-up, Windows Vista starts searching for new drivers. Press *Cancel* to abort the search.


Found New Hardware
Windows needs to install driver software for your HC25 VCOM
Found New Hardware
Windows needs to install driver software for your HC25 NET
Found New Hardware
Windows needs to install driver software for your HC25 MODEM
Locate and install driver software (recommended)
Windows will guide you through the process of installing driver software for your device.
Ask me again later
Windows will ask again the next time you plug in your device or log on.
Don't show this message again for this device
Your device will not function until you install driver software.
Cancel

In some cases, the *Found New Hardware* wizards may indicate "Unknown Device" instead of HC25 VCOM, HC25 NET and HC25 MODEM. The procedure is the same - simply press *Cancel* three times.


Found New Hardware
Windows needs to install driver software for your Unknown Device
Locate and install driver software (recommended)
Windows will guide you through the process of installing driver software for your device.
Ask me again later
Windows will ask again the next time you plug in your device or log on.
Don't show this message again for this device
Your device will not function until you install driver software.
Cancel

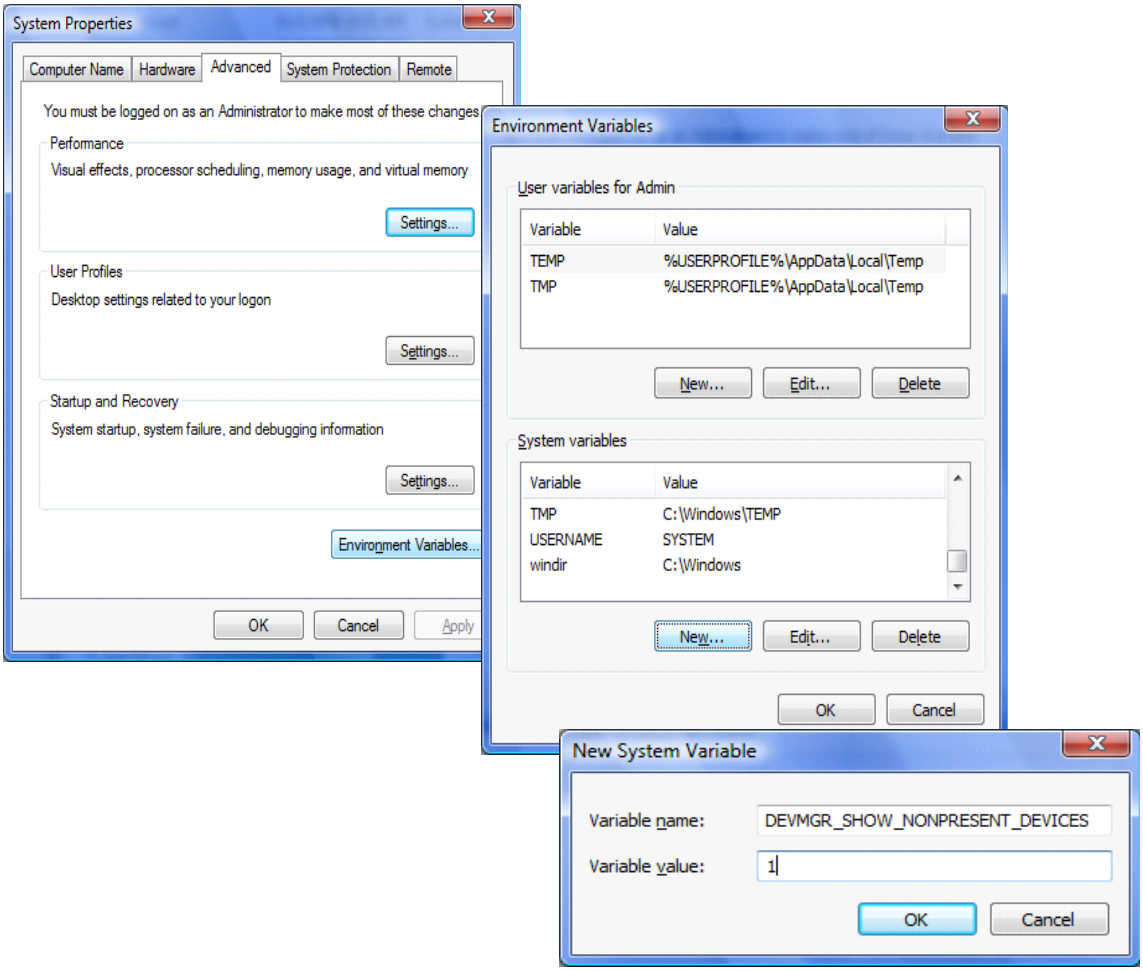
7. The HC25 Connection Manager and the HC25 drivers are removed now.
   Only the two files files hc25usbser.sys“ and “hc25usbnet.sys are left unchanged in the ..\WINDOWS\system32\drivers folder. Yet, this is no problem, as they will be overwritten next time you re-install the drivers.

2.8.3 Uninstalling Components if HC25 is Disconnected

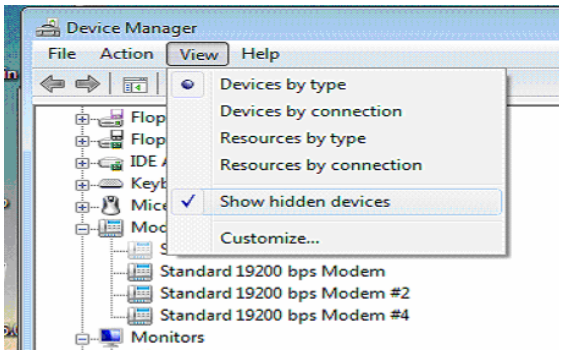
If disconnected or switched off, the HC25 module is not visible on the Windows XP or Windows Vista computer unless you enable the operating system to show hidden devices. The purpose of this section is to describe how to uninstall HC25 components in such case. The dialog boxes show Windows Vista, but Windows XP is quite similar.

1. Remove the HC25 Connection Manager as described in Section 2.8.1.
   As a result, the Connection Manager software will be uninstalled, but the HC25 drivers are not.

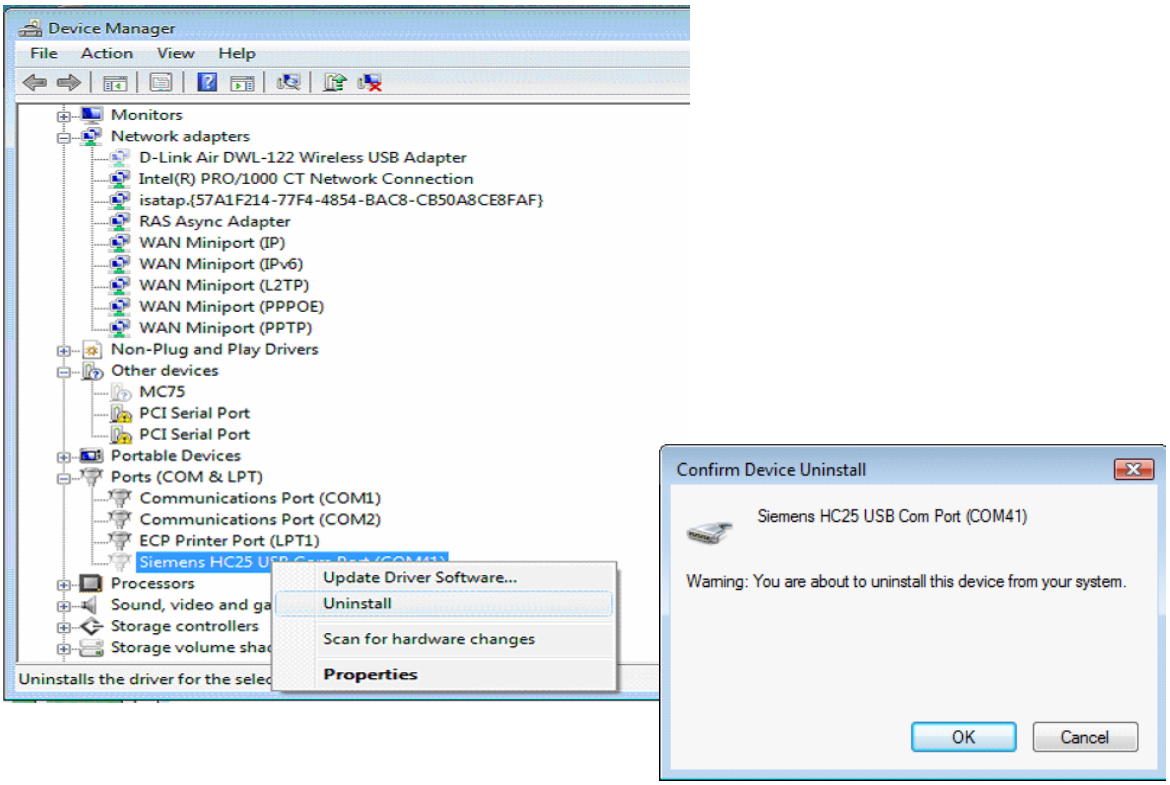
2. Although not visible, the HC25 drivers are still blocking two virtual COM ports. To free the ports hidden devices must be shown as follows:
   On Windows XP, open the *Control Panel*, click *System* and select the *Advanced* tab.
   On Windows Vista, open the *Control Panel*, select *System and Maintenance*, click *System* and *select Advanced system settings* on the left panel of the dialog box.
   Then press the *Environment Variables* button. In the resulting dialog box point to the *System variables* section and press the *New* button.
   Enter the new system variable "DEVMGR_SHOW_NONPRESENT_DEVICES" and set value "1".



3. Open the *Device Manager* (from *Control Panel*). Note that if the *Device Manager* is already open you need to close and re-open it to update the status of the devices. From the *View* menu select *Show hidden devices*.



4. All hidden virtual HC25 devices are listed now. Right-click each device, one by one, select *Uninstall* and confirm the resulting uninstall messages.
   The example shows how to uninstall the Siemens HC25 USB Com Port. The Siemens HC25 Wireless Ethernet Adapter and the Siemens HC25 HSDPA USB Modem must be uninstalled in the same way.



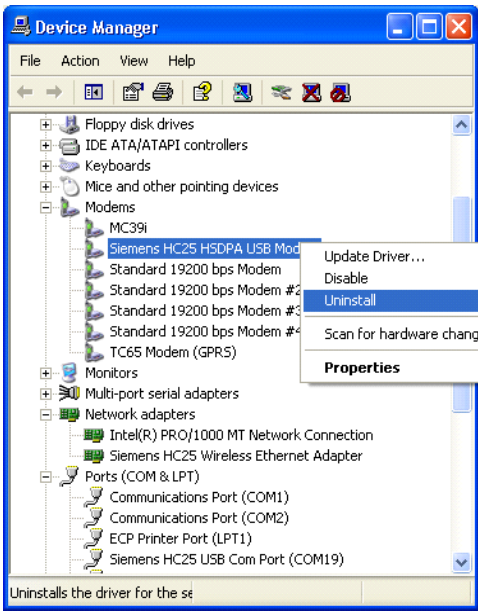
2.8.4 Uninstalling Components of HC25 Preview Releases

The following procedures apply only to drivers of earlier HC25 releases supplied as preview samples for testing only. These drivers were available only for Windows XP.

2.8.4.1 Uninstalling Earlier Drivers

1. Under Windows XP, open the *Device Manager* and select the drivers as described in Section 2.7. Keep in mind that the drivers are listed in the *Device Manager* only when the module is switched on. Right-click the driver and, from the resulting menu, select *Uninstall*.

   If the module is disconnected first follow the steps provided in Section 2.8.3 and enable the *Device Manager* to show hidden devices.



2. Under ..\WINDOWS\system32\drivers remove the two files “hcusbser.sys“ and “hcusbnet.sys“. (Please note that the newly installed HC25 drivers will now be set up as “hc25usbser.sys“ and “hc25usbnet.sys).
3. Under ..\WINDOWS\INF check for old “oem*.inf“ and “oem*.pnf“ files and remove all files related to earlier customer samples.
   To do so, open the currently installed “oem*.inf“ file(s) and compare the content with the “hcser.inf“, “hcnet.inf“and "hcmdm.inf" supplied with the latest release. All “oem*.inf“ and associated “oem*.pnf“ files based on information from old “hcser.inf“, “hcnet.inf“ and “hcmdm.inf“files must be removed.
   An easy way to compare the content of these files is checking the information given in the [Siemens] section, such as the two examples shown below:
   Examples:

```
[SIEMENS]
%hcwwan.DeviceDesc_hc1%    = hcwwan.ndi, USB\VID_0681&PID_0040&MI_01

[SIEMENS]
%hcwwan.DeviceDesc_hc1%    = hcwwan.ndi, USB\VID_05C6&PID_7001&MI_01
```

2.8.4.2 Uninstalling Earlier Connection Manager

Old versions of the Siemens Connection Manager were installed in Windows XP under *Program Files* | *Siemens* | *ConnectionManager*. To uninstall the program simply remove the "conman.exe" file.
Any shortcuts and icons must be deleted manually.

2.9 Updating HC25 Drivers

Driver updates are contained in a ZIP file named "HC25_<release>_conman_install.zip". The ZIP file is either delivered separately or ready for download from http://www.siemens.com/wm.

The following sections describe how to install the new drivers either from any location on a Windows XP computer (see Section 2.9.1) or a Windows Vista computer (see Section 2.9.2) or from the HC25 mass storage (see Section 2.9.3).

2.9.1 Installing HC25 Drivers from Any Folder on Windows XP

1. Switch off the HC25 module or unplug the USB cable.
2. Copy or unpack the new driver package to any folder on your Windows XP computer.
   The folder tree must be the same as shown in Section 2.9.3, Figure 4. Therefore, do not copy or unpack the files into one folder only.
   Recommendation: When you extract the supplied "HC25_<release>_conman_install.zip" take care to retain the folders and subfolders stored in the ZIP archive.
3. Double-click the "autorun.exe" file from the dezipped driver package.
4. The installation of the Siemens Connection Manager will start and, at the same time, the composite device driver software will be preinstalled. Simply follow the screens described in Section 2.4.1. The last installation dialog closes automatically.
5. Now, switch on the HC25 module or replug the USB cable.
6. Windows will detect the HC25 module as a new device. The *New Hardware Found* wizard pops three times, prompting you to install the following devices:
   - Siemens HC25 USB Com Port driver
   - Siemens HC25 Wireless Ethernet Adapter driver
   - Siemens HC25 HSDPA USB Modem driver

   To do so, follow the screens described in Section 2.4.2, i.e. simply press *Next* in each dialog, using the option *Install the software automatically (Recommended)*.

Keep in mind that, before the composite device drivers are installed, the HC25 enumerates as mass storage if the factory default settings of the AT^SUSB command are left unchanged: parameter <start> equals "MdmNet" and timeout <mnto> equals 10 seconds. The mass storage is not needed, but you may be required to take the following precautions:

- If the installation of all three drivers completes before the <mnto> timeout expires the mass storage will be deactivated automatically. But as 10 seconds are typically not enough for all three drivers it is very likely that the HC25 enumerates as mass storage during the installation. As a result, the driver installation (step 6 above) may be halted, for example after the first (or already the second) driver was set up. Yet, this is nothing to worry about - all you need to do is manually ejecting the mass storage. So, right-click the *Removable Disk* drive inside the Windows Explorer and select *Eject*. This will deactivate the mass storage functionality, and at the same time, cause the *New Hardware Found* wizards for the next one or two drivers to pop up.
- If you prefer to install driver updates always from a location other than the HC25 mass storage, you can disable the <mnto> timeout of the AT^SUSB command (set 0 seconds). The setting is non-volatile. For details on AT^SUSB please refer to [2].

IMPORTANT: To avoid mixing up the driver packages located in the mass storage and in any other folder be sure to run the "autorun.exe" only from the new dezipped driver package.

2.9.2 Installing HC25 Drivers from Any Folder on Windows Vista

1. Switch off the HC25 module or unplug the USB cable.
2. Copy or unpack the new driver package to any folder on your Windows XP computer.
   The folder tree must be the same as shown in Section 2.9.3, Figure 4. Therefore, do not copy or unpack the files into one folder only.
   Recommendation: When you extract the supplied "HC25_<release>_conman_install.zip" take care to retain the folders and subfolders stored in the ZIP archive.
3. Double-click the "autorun.exe" file from the dezipped driver package.
4. The installation of the Siemens Connection Manager will start and, at the same time, the composite device driver software will be preinstalled. Simply follow the screens described in Section 2.5.1. The last installation dialog closes automatically.
5. Now, switch on the HC25 module or replug the USB cable.
6. The installation of the composite device drivers continues automatically as described in Section 2.4.2.

On Windows Vista, the 10s timeout <mnto> of the AT^SUSB command will often be sufficient for the composite device driver installation, eliminating the need for HC25 to temporarily enumerate as mass storage. However, if 10 seconds are not enough, the HC25 enumerates as mass storage, and the driver installation (step 6 above) may be halted as explained in Section 2.9.1 for Windows XP. In this case, manually eject the mass storage. To do so, right-click the *Removable Disk* drive inside the Windows Explorer and select *Eject*. This will deactivate the mass storage functionality, and the installation will proceed.

If you prefer to install driver updates always from a location other than the HC25 mass storage, you can disable the <mnto> timeout of the AT^SUSB command (set 0 seconds). The setting is non-volatile. For details on AT^SUSB please refer to [2].

IMPORTANT: To avoid mixing up the driver packages located in the mass storage and in any other folder be sure to run the "autorun.exe" only from the new dezipped driver package.

2.9.3 Installing HC25 Drivers from HC25 Mass Storage

To ensure that the driver update installation can be started from the mass storage of the HC25 we recommend to follow the steps listed below. By this approach, the factory settings of the AT^SUSB command can be left unchanged: parameter <start> equals "MdmNet" and timeout <mnto> equals 10s.

1. Uninstall the drivers and the HC25 Connection Manager as described in Section 2.8.
2. Switch off or unplug the module, then switch on or replug the module.
3. Abort the installer if started automatically (press *Cancel* in all three *New Hardware Found* wizards).
4. Because no installed drivers are found (within the above AT^SUSB timeout <mnto>), the HC25 module enumerates as mass storage, usually showing up as *Removable Disk* assigned to the next free drive of the Windows Explorer. Navigate to this drive and delete all existing files, folders and subfolders containing the old driver package (see Figure 3).

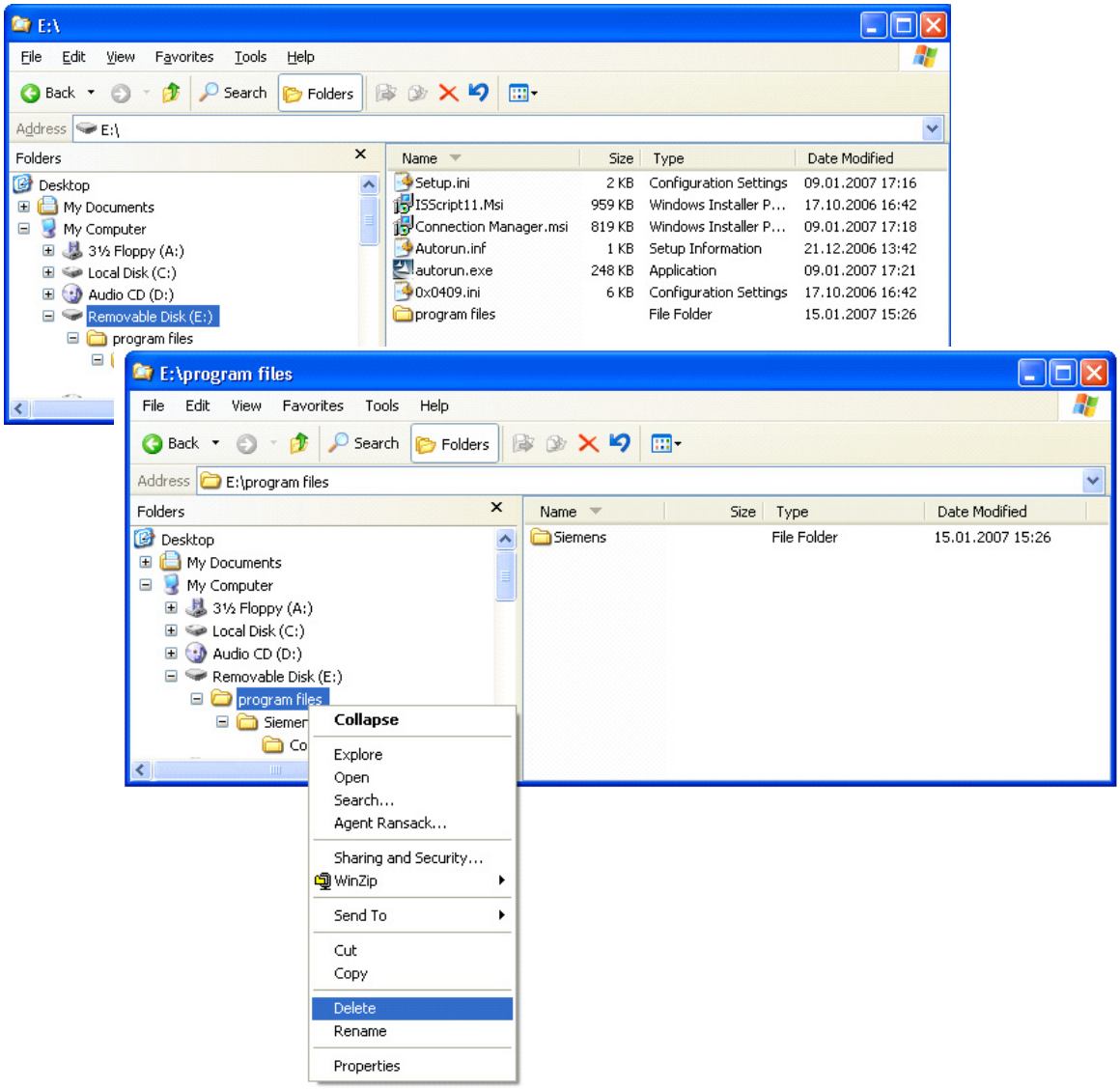


Figure 3: Deleting obsolete HC25 driver files, folders and subfolders

5. Copy or unpack the new driver package to the mass storage drive.
   The folder tree must be the same as shown below. Therefore, do not copy or unpack the files into one folder only.
   Recommendation: When you extract the supplied "HC25_<release>_conman_install.zip" take care to retain the folders and subfolders stored in the ZIP archive.

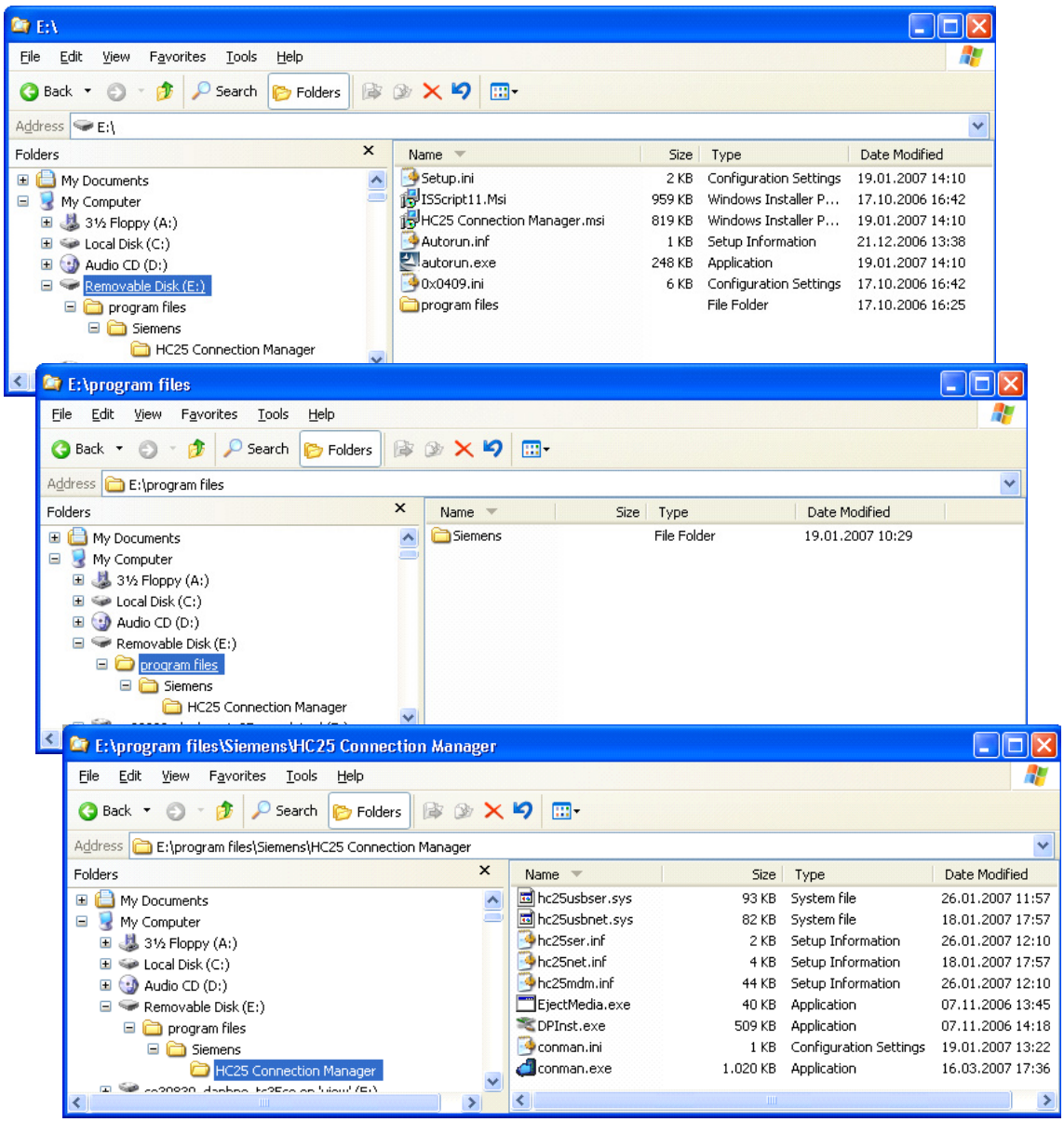

E:\
File Edit View Favorites Tools Help
Back Search Folders
Address E:\
Folders
My Documents
My Computer
3½ Floppy (A:)
Local Disk (C:)
Audio CD (D:)
Removable Disk (E:)
program files
Siemens
HC25 Connection Manager
Name Size Type Date Modified
Setup.ini 2 KB Configuration Settings 19.01.2007 14:10
ISScript11.Msi 959 KB Windows Installer P... 17.10.2006 16:42
HC25 Connection Manager.msi 819 KB Windows Installer P... 19.01.2007 14:10
Autorun.inf 1 KB Setup Information 21.12.2006 13:38
autorun.exe 248 KB Application 19.01.2007 14:10
0x0409.ini 6 KB Configuration Settings 17.10.2006 16:42
program files File Folder 17.10.2006 16:25
E:\program files
Address E:\program files
Siemens File Folder 19.01.2007 10:29
E:\program files\Siemens\HC25 Connection Manager
Address E:\program files\Siemens\HC25 Connection Manager
hc25usbser.sys 93 KB System file 26.01.2007 11:57
hc25usbnet.sys 82 KB System file 18.01.2007 17:57
hc25ser.inf 2 KB Setup Information 26.01.2007 12:10
hc25net.inf 4 KB Setup Information 18.01.2007 17:57
hc25mdm.inf 44 KB Setup Information 26.01.2007 12:10
EjectMedia.exe 40 KB Application 07.11.2006 13:45
DPInst.exe 509 KB Application 07.11.2006 14:18
conman.ini 1 KB Configuration Settings 19.01.2007 13:22
conman.exe 1.020 KB Application 16.03.2007 17:36

Figure 4: Folder tree of HC25 driver package

6. Close the Windows Explorer and switch off or unplug the HC25 module.

Now the module is prepared for easy installation from the mass storage. You can switch on or replug the HC25 module any time and proceed as described in Section 2.4 for Windows XP or Section 2.5 for Windows Vista.

2.10 Customizing Connection Manager and Driver Names

Manufacturers of HC25 applications are given the flexibility to customize the names of the Connection Manager and the composite device drivers of HC25, rather than using the names set by factory default.

2.10.1 Customizing the Connection Manager

To customize the Connection Manager you can edit the "conman.ini" file using any text editor. It is recommended to do so before installing the HC25 driver package.

The "conman.ini" file is located in the same directory as the "conman.exe" (Connection Manager executable). The factory default settings are shown below. The ProductName string specified in the "conman.ini" file appears in the title bar of the Connection Manager dialog box.

```
[ConMan]
ProductName = Siemens Connection Manager
CompanyName = Siemens AG
```

Both the ProductName and the CompanyName can be replaced with customer specific strings as shown in the example below.

```
[ConMan]
ProductName = My Own Connection Tool
CompanyName = My Company
```

2.10.2 Customizing the Displayed Driver Names

If you would like to change the driver names displayed in the Device Manager as well, you need to change strings inside the INF files provided with the HC25 driver package:
hc25mdm.inf, hc25net.inf and hc25ser.inf.
You can use any text editor. The changes have to be done prior to installing the drivers.

Be careful to change only the strings listed below. Do not change any other strings, because otherwise the drivers may not work properly.

In the following examples the name "Siemens" has been replaced with "My Company".

Changes inside the hc25mdm.inf file

```
[Version]
...
DriverPackageDisplayName="My Company HC25 HSDPA Modem"
...
[Strings]
SIEMENS       = "My Company"
SIEMENS_hc2   = "My Company HC25 HSDPA USB Modem"
HCUSBSER      = "My Company HC25 USB Device for Legacy Serial Communication"
```

Changes inside the hc25net.inf file

```
[version]
...
DriverPackageDisplayName="My Company HC25 HSDPA NDIS"
...
[Strings]
SIEMENS                 = "My Company"
hcwwan.DeviceDesc_hc1   = "My Company HC25 Wireless Ethernet Adapter"
hcwwan.Service.DispName = "My Company HC25 USB-NDIS miniport"
```

Changes inside the hc25ser.inf file

```
[Version]
...
DriverPackageDisplayName="My Company HC25 USB Port"
...

[Strings]
SIEMENS        = "My Company"
ComDevice_hc3  = "My Company HC25 USB Ctrl Port"
ComDevice_hc0  = "My Company HC25 USB Com Port"
HCUSBSER       = "My Company HC25 USB Device for Legacy Serial Communication"
```

3 Using the HC25 Module

The following examples show the basic steps required to register to the network, to select UMTS mode or GSM mode and to attach to HSDPA or GPRS.

The examples are based on a UICC card provisioned by the German network operator T-Mobile. The used UICC card is capable of UMTS and GSM and enables the subscriber to switch back and forth between both networks.

3.1 AT Command Interpreter

AT commands can be entered on two interfaces of the HC25 module:
- Siemens USB Com Port
- Siemens HSDPA USB Modem

Yet, we recommend that the Siemens HSDPA USB Com Port be used for controlling the HC25 module, eg. for entering AT commands and receiving URCs, while the Siemens HSDPA USB Modem is mainly intended for use as a modem. For greater detail refer to [2], especially sections "AT Command Interpreter" and "Unsolicited Result Code Presentation".

As described in Section 2.7, each interface is assigned a virtual COM port of its own, which enables accessing the interface from the host application or, accordingly, the dial-up network connection. To easily identify both interfaces you can use the AT^SQPORT command:

AT^SQPORT Application OK	On the AT command interface, the Siemens HSDPA USB Com Port is referred to as "Application".
AT^SQPORT Modem OK	On the AT command interface, the Siemens HSDPA USB Modem is referred to as "Modem".

If you need to operate the HC25 from both interfaces at a time, bear in mind that both are handled by the same AT command interpreter. As a result, AT commands entered on both interfaces are not executed in parallel but sequentially, one after the other. So, an AT command issued on one interface will be buffered on this interface to be executed after the other interface has completed processing earlier AT command(s). The buffered command string is not echoed, but will be indicated when executed.

3.2 Switching on the HC25

The HC25 can be started by pressing the IGT key of the DSB75. Please wait approximately 2 seconds before using the module, for example before entering AT commands.

3.3 Switching off the HC25

To shut down the HC25 module, enter the AT^SMSO command. This enables the ME to save all data and perform an orderly shutdown.

AT^SMSO OK	The ME switches off.

The HC25 module can also be switched off by using the IGT line as described in [2], Section AT^SCFG and in [1], Section "Configuring the IGT Line for Use as ON/OFF Switch")

3.4 Registering to the Network

Make sure to operate the HC25 always with the UICC card inserted in the DSB75 card reader and a valid SIM PIN entered. This is because most AT commands require SIM PIN authentication.
Write command: AT+CPIN=<pin>[, <new pin>]

AT+CPIN? +CPIN: SIM PIN OK AT+CPIN="1234" OK AT+CPIN? +CPIN: READY OK	Entering the SIM PIN.

3.5 Selecting UMTS or GSM

The GSM 07.07 operator selection command AT+COPS has been enhanced to enable the subscriber to select whether to use UMTS or GSM. You can quickly switch back and forth between both network types while the ME remains registered.

Write command: AT+COPS=<mode>[, <format>[, <oper>[, <act>]]]

The parameter <act> (access technology) can take the values listed below. The parameter is stored non-volatile.
0 GSM network
2 UMTS network

Note: By factory default, an automatic network selection mode is set which enables the ME to select either UMTS or GSM, depending on the network coverage. This automatic mode remains enabled until you explicitly set either UMTS or GSM using the <act> parameter of AT+COPS. Setting the <act> parameter forces the ME to select either UMTS only or accordingly, GSM only. If the specified network is not available, the network registration will be disabled. Setting <mode> to 0 without choosing a specific <act> enables the automatic selection mode once again.

AT+COPS?	Querying the current network mode.
+COPS: 0,0,"T-Mobile D",2	The ME is registered to the German operator T-Mobile and uses UMTS.
OK	
AT+COPS=0,,,0 #(or AT+COPS=,,,0)	Selecting the GSM network.
OK	
AT+COPS?	Query the current network type.
+COPS: 0,0,"T-Mobile D",0	The response confirms that the ME has changed to the GSM network.
OK	
AT+COPS=0,,,2 #(or AT+COPS=,,,2)	Selecting the UMTS network.
OK	
AT+COPS?	
+COPS: 0,0,"T-Mobile D",2	
OK	
AT+CPIN?	There is no need to enter the SIM PIN again.
+CPIN: READY	
OK	
AT+COPS=0	Setting automatic network selection mode.
OK	

Furthermore, the command AT+COPS serves to query or specify several modes of selecting the GSM network operator. These functions are not discussed in this document.

3.6 Attaching to the HSDPA or GPRS Network

After PIN authentication, the HC25 module automatically tries to attach to the HSDPA or, accordingly, GPRS network.

AT+CGATT? +CGATT: 1 OK	Querying the current service state. The ME is attached, depending on the selected network type (see AT+COPS), it is either attached to the HSDPA or GPRS service.

3.7 Defining the PDP Context

Use the AT+CGDCONT command to configure the correct provider settings. The PDP context is stored non-volatile.

Write command:
AT+CGDCONT=<cid>[, <PDP_type>[, <APN>[, <PDP_addr>]]]

AT+CGDCONT=1,"IP","internet.t-mobile" OK AT+CGDCONT? +CGDCONT: 1,"IP","internet.t-mobile","",0,0 OK	Specifying the PDP context (example shows the APN of the German network provider T-Mobile). Checking the current PDP context definition.

The focus of this document is only on the parameters <cid>, <PDP_type> and <APN>. The string parameters must be enclosed in quotation marks.

Under Windows XP, the PDP context can, optionally, be entered on the *Modem* property page as described in Section 2.7.

3.8 Making a Voice Call (MO)

The commonly used GSM 07.07 dialing command ATD is fully applicable both in the UMTS and the GSM network.

To make a mobile originated voice call enter ATD, type the destination number and add a semi-colon. The result code OK will be returned immediately after dialing, prior to call setup.

To end the call, use the AT+CHUP command (ATH is for data calls only).

ATD030111111111; OK	The HC25 subscriber makes a voice call.
at+clcc +CLCC: 1,0,0,0,0,"030111111111",129,"Tom"	Checking the call status (MO call is active).
	The HC25 subscriber terminates the call.
AT+CHUP OK	
	Checking the call status (no call).
at+clcc OK	

3.9 Answering a Voice Call (MT)

A mobile terminated voice call is indicated by the RING URC. To answer the call, enter ATA.

To terminate the call use AT+CHUP.

3.10 HSDPA or GPRS Data Transfer

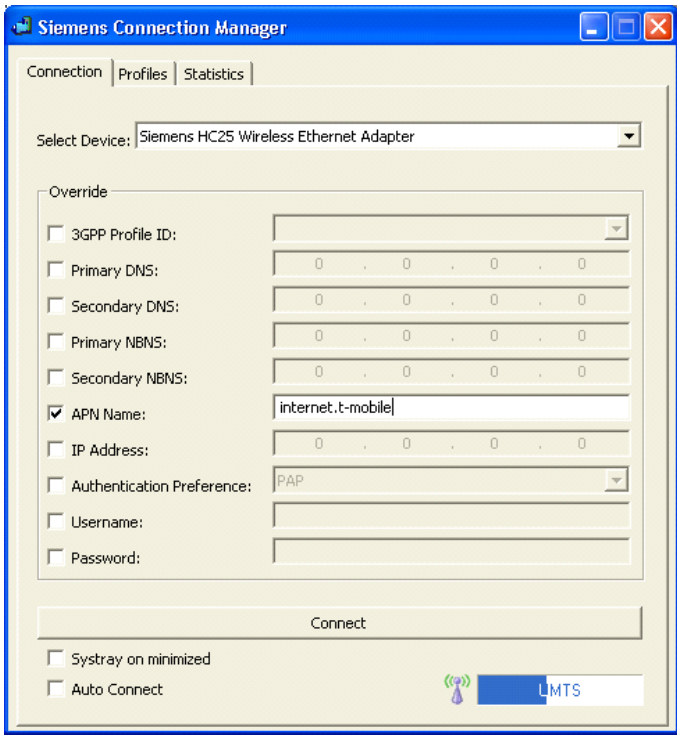
HC25 offers two alternatives to access the GPRS or HSDPA networks:

- The Siemens HC25 Connection Manager provided for the Siemens Wireless Ethernet Adapter. See Section 3.10.1. The program is part of the HC25 driver package.
- A dial-up network connection via the installed Siemens HSDPA USB Modem as described in Section 3.10.3.

In either case the ME must be registered to the network. So, before trying to connect to the data services ensure that SIM PIN authentication was done from the host application. To take advantage of HSDPA make sure that the <act> parameter of AT+COPS equals "2". For GPRS the parameter shall be "0". It is recommended to configure these settings on the Siemens HSDPA USB Com Port.

3.10.1 Data Transfer via Siemens Connection Manager on Windows XP

This section describes how to use the Siemens HC25 Connection Manager on Windows XP.



- To open the program in Windows XP, click *Start*, point to *Programs*, select *Siemens*, select *HC25 HSDPA USB Modem* and click *HC25 Connection Manager*.
- Use the *Select Device* listbox to choose the Siemens Wireless Ethernet Adapter. When opened the first time or after disabling the adapter, the listbox may be empty.
- Check the *APN Name* box and enter the APN (Access Point Name) of your service provider.
- If necessary, check the *Authentication Preference* box and select the type of authentication protocol. Otherwise, PAP and CHAP apply by default. Username and password are also provider dependent.
- Press the *Connect* button to set up a connection. Then simply open your Internet browser. The box on the rightmost bottom represents the signal strength.
- To close the connection press the *Disconnect* button (available when connected).

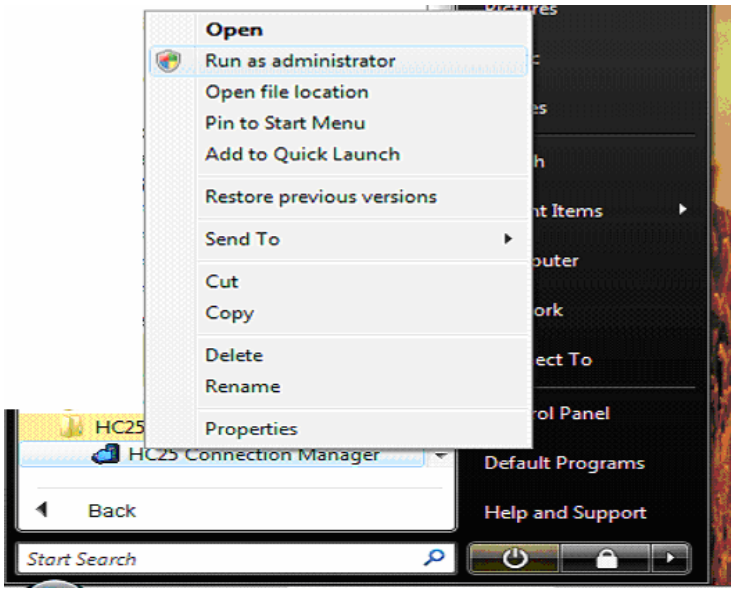
The *Auto Connect* check box on the leftmost bottom can be activated if you want the Siemens Wireless Ethernet Adapter to automatically connect to the network each time you restart the HC25. This option can be used particularly with a flat rate subscription. In this case, take care that the SIM PIN authentication is also done automatically.

3.10.2 Data Transfer via Siemens Connection Manager on Windows Vista

This section describes how to use the Siemens Connection Manager on Windows Vista.

Windows Vista requires the user to log on a administrator, not only for installing, but also for using the Siemens Connection Manager. The administrator privileges for using the program can be set either temporarily or permanently.

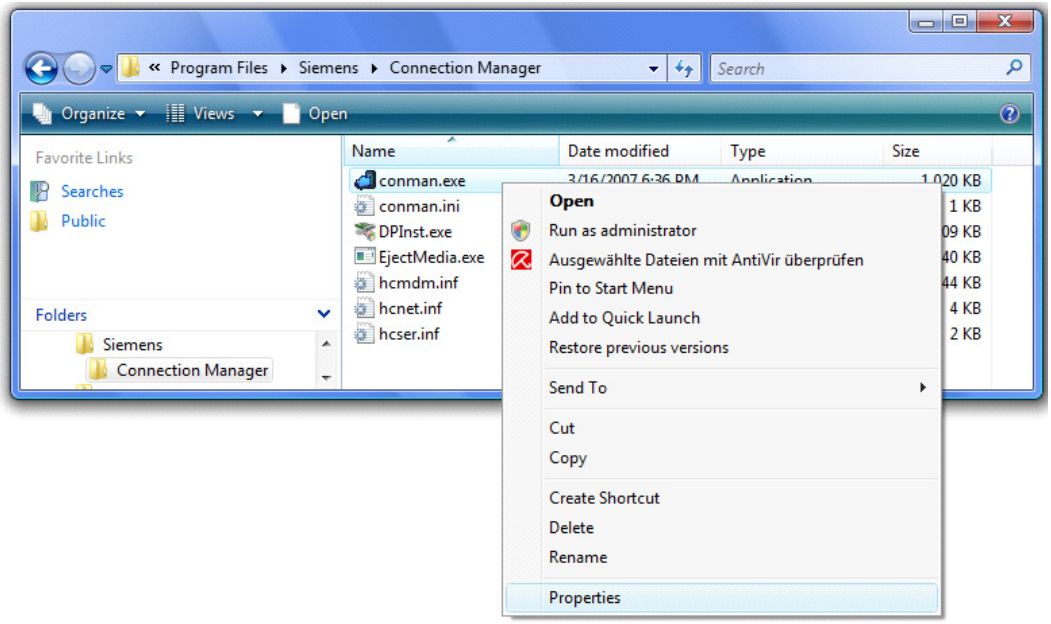
Temporary administrator privileges for the Siemens Connection Manager
Click the *Start* menu, point to *Programs*, select *Siemens*, select *HC25 HSDPA USB Modem*. Right-click the HC25 Connection Manager. From the resulting context menu, select the option *Run as administrator*.



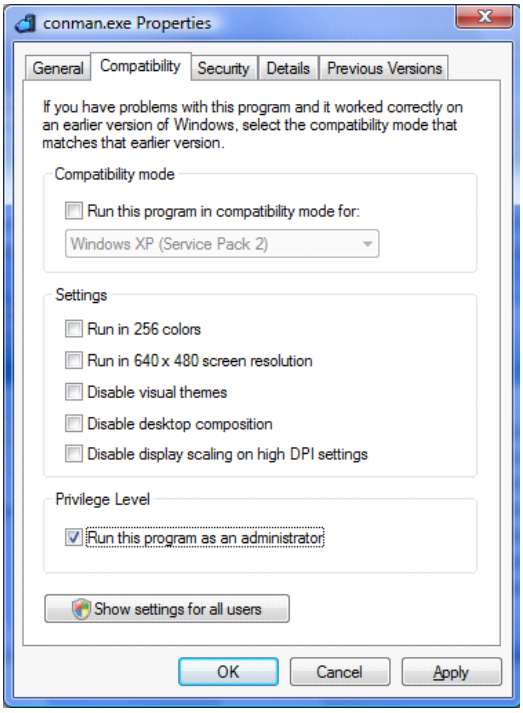
A popup window "User Account Control" will show: "An unidentified program wants access to your computer". Please press "Allow" to start the program.

Permanent administrator privileges for the Siemens Connection Manager
A more convenient way is to enable the Siemens Connection Manager to always start with administrator privileges:

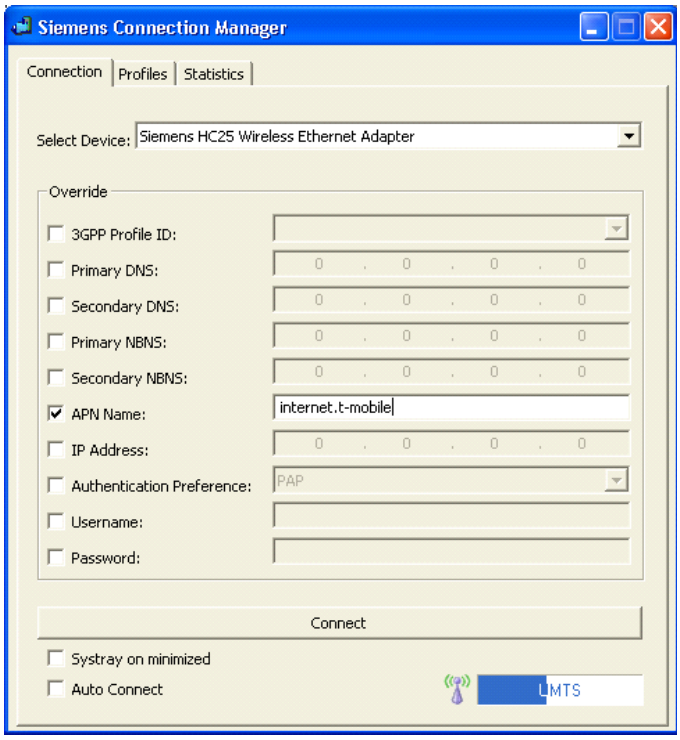
To do so, open the Windows Vista Explorer, select the installation path, e.g. c:\Program Files\Siemens\HC25 Connection Manager\. Right-click the "conman.exe" file and select *Properties* from the resulting the context menu.



The *conman.exe Properties* dialog box opens. Select the *Compatibility* tab. In the *Privilege Level* section, check *Run this program as an administrator*.


conman.exe Properties
General
Compatibility
Security
Details
Previous Versions
If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.
Compatibility mode
Run this program in compatibility mode for:
Windows XP (Service Pack 2)
Settings
Run in 256 colors
Run in 640 x 480 screen resolution
Disable visual themes
Disable desktop composition
Disable display scaling on high DPI settings
Privilege Level
Run this program as an administrator
Show settings for all users
OK
Cancel
Apply

Using Siemens Connection Manager on Windows Vista



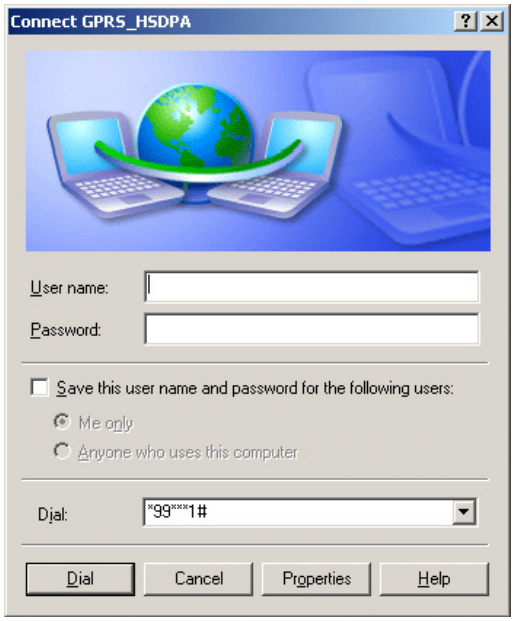
- Use the *Select Device* listbox to choose the Siemens Wireless Ethernet Adapter. When opened the first time or after disabling the adapter, the listbox may be empty.
- Check the *APN Name* box and enter the APN (Access Point Name) of your service provider.
- If necessary, check the *Authentication Preference* box and select the type of authentication protocol. Otherwise, PAP and CHAP apply by default. Username and password are also provider dependent.
- Press the *Connect* button to set up a connection. Then simply open your Internet browser. The box on the rightmost bottom represents the signal strength.
- To close the connection press the *Disconnect* button (available when connected).

The *Auto Connect* check box on the leftmost bottom can be activated if you want the Siemens Wireless Ethernet Adapter to automatically connect to the network each time you restart the HC25. This option can be used particularly with a flat rate subscription. In this case, take care that the SIM PIN authentication is also done automatically.

3.10.3 Data Transfer via Dial-Up Network

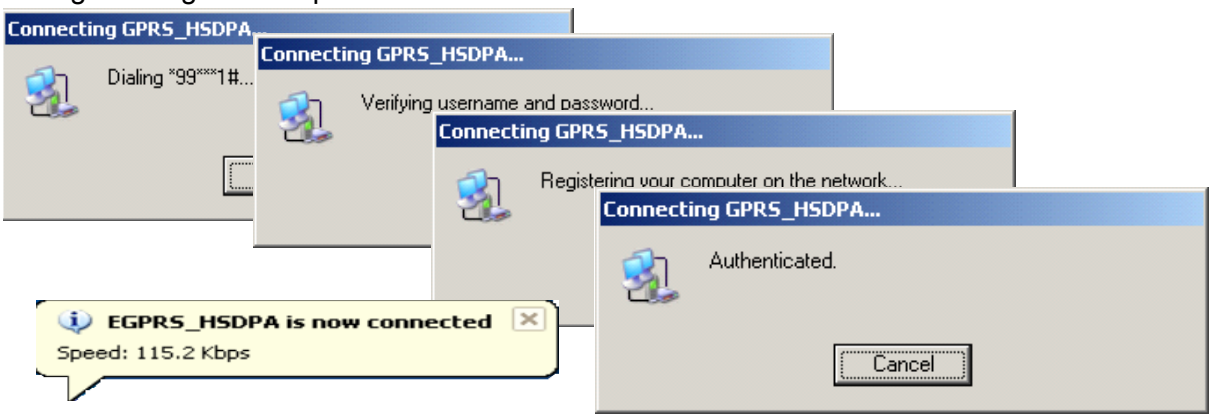
The focus of this section is on Windows XP. Instructions on how to create a new dial-up network connection on Windows XP can be found in Chapter 4. Windows Vista is not shown in detail.

Before dialing, make sure that the virtual COM port is not used by any application (eg. by a terminal program or by the host application).
Also, ensure that you have the PDP context for your service provider defined by using the AT+CGDCONT command. The command string can be entered either on the *Modem* property page on the Windows *Control Panel* or in the host application (see Section 2.7 and Section 3.7).

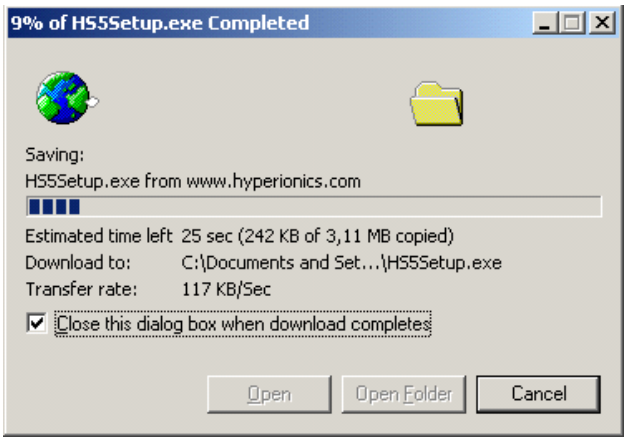


From the *Control Panel* of Windows XP, choose *Network Connections* and select the dial-up network connection created for HC25 (on Windows Vista go to *Network* and select *Network and Sharing Center)*. The correct dial string *99***1# should already be given, if entered in the Phone number box when the dial-up network connection was added. Otherwise, you can type the number here before dialing.
User name and password may or may not be required, depending on the network operator.

The connection is properly established when the following messages are reported:



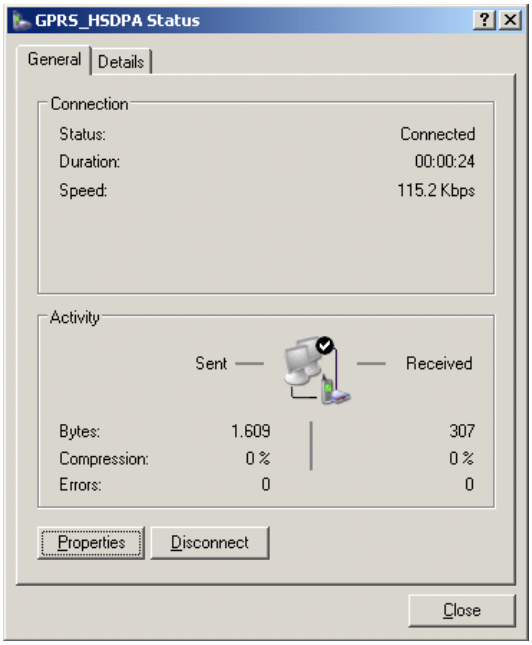
Note that the message showing “Speed 115.2 kbps“ can be ignored. It is only a Windows standard message for modems which is neither relevant for USB nor does it reflect the true data rate used on the air interface.
To verify the data rates for up- and/or downlink, you can use, for example, the file download status dialog of your Internet browser.



Terminating the dial-up network connection
To stop a HSDPA or GPRS data connection disconnect the dial-up network connection. This can be done in two ways:

1. Double-click the dial-up network connection icon in the system tray. In the resulting connection status dialog press the *Disconnect* button.

2. The other way is available on the Network Connections page of the Control Panel: Right-click the active connection to open a context menu where to choose *Disconnect*.



3.10.3.1 Local Echo Settings

Due to the initialization strings typically set by modems, a dial-up network connection may automatically change the local echo settings: Opening a dial-up network connection deactivates (ATE0) and activates (ATE1) the local echo. Releasing the dial-up network connection deactivates the echo once again (ATE0). As modem and application interface are controlled from the same AT command interpreter the change takes effect on both interfaces.

Therefore, after closing a dial-up network connection you are advised to wait a few seconds before entering an AT command on the Application interface. Otherwise, it is possible that the echo deactivation command ATE0 is still being executed on the modem interface while another AT command is already entered on the application interface. As a result, the AT command response expected on the application interface may appear incomplete.

Likewise, if you enter an AT command on the application interface in parallel to a dial-up network connection running on the modem interface at the time when the echo is deactivated take into account that the expected response may be indicated either partially or not at all.

Each time after closing a dial-up network connection you are advised to send the ATE1 command to enable the local echo again.

4 Appendix I

4.1 Adding and Configuring a New Dial-Up Network Connection

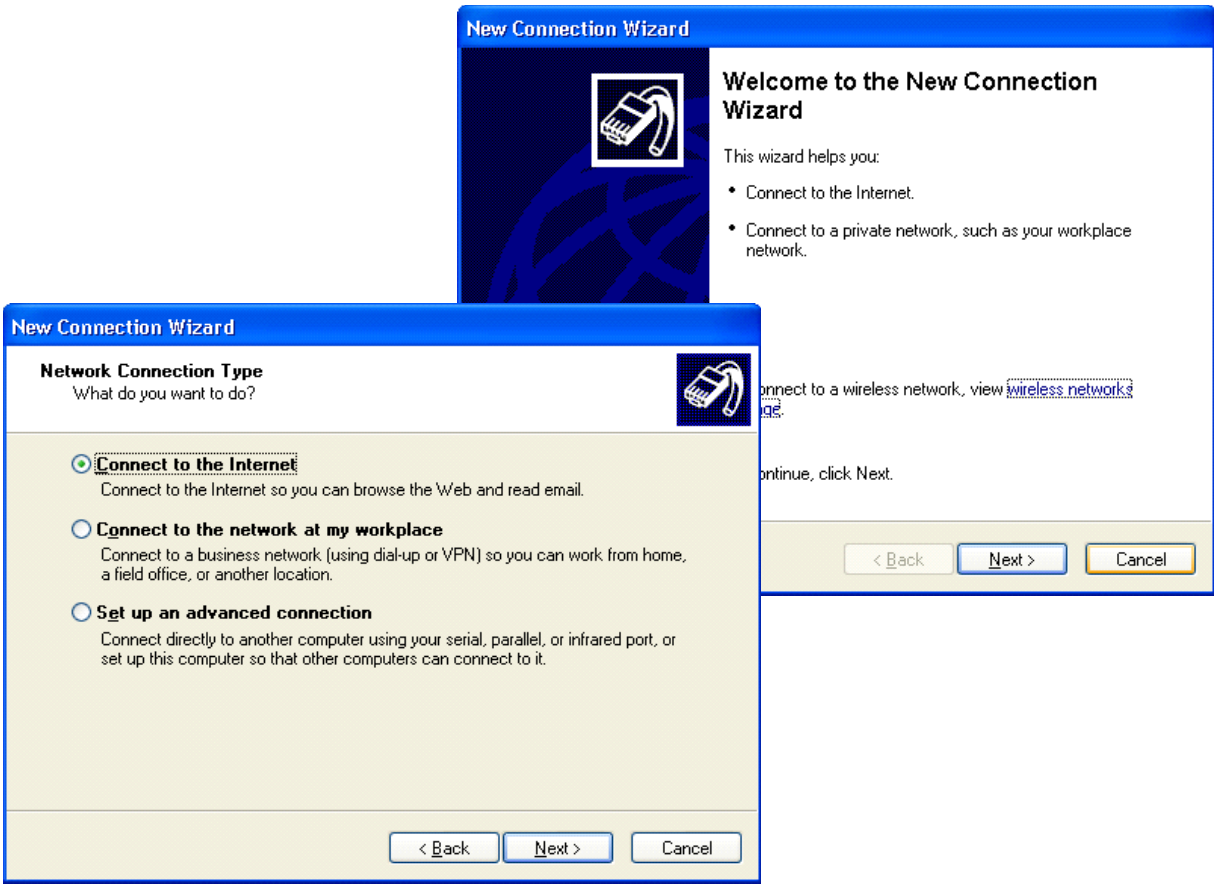
This section will help you create and configure a new dial-up network connection when using the installed Siemens HSDPA USB Modem to access the GPRS or HSDPA network.

All step-by-step instructions and figures provided below refer to Windows XP. In Windows Vista, use the *Network and Sharing Center* to configure a dial-uo network connection.

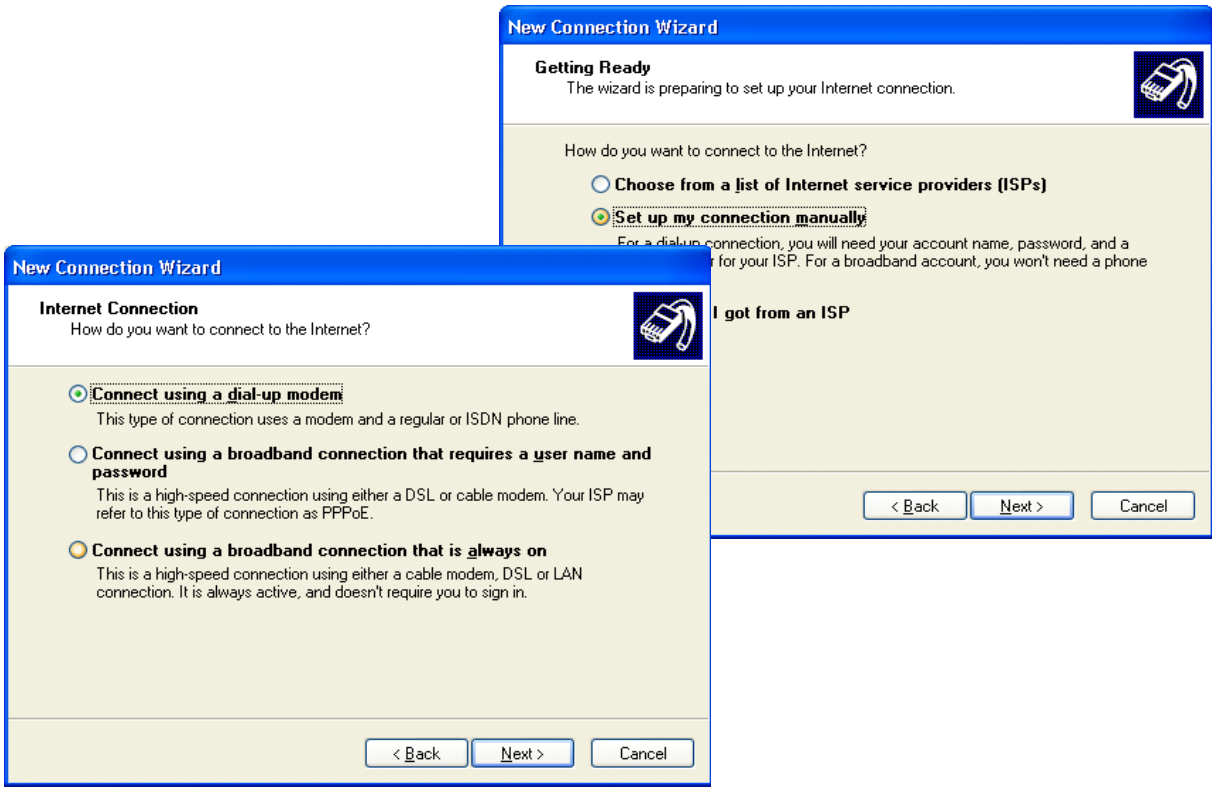
4.1.1 Creating a New Dial-up Network Connection

There are several ways to start creating a new dial-up network connection. For example, open the *Control Panel*, double-click *Network Connections*, select *New connection*. Another way is to select *Settings* from the *Start* menu, click *Network Connections*, then *New Connection Wizard*.

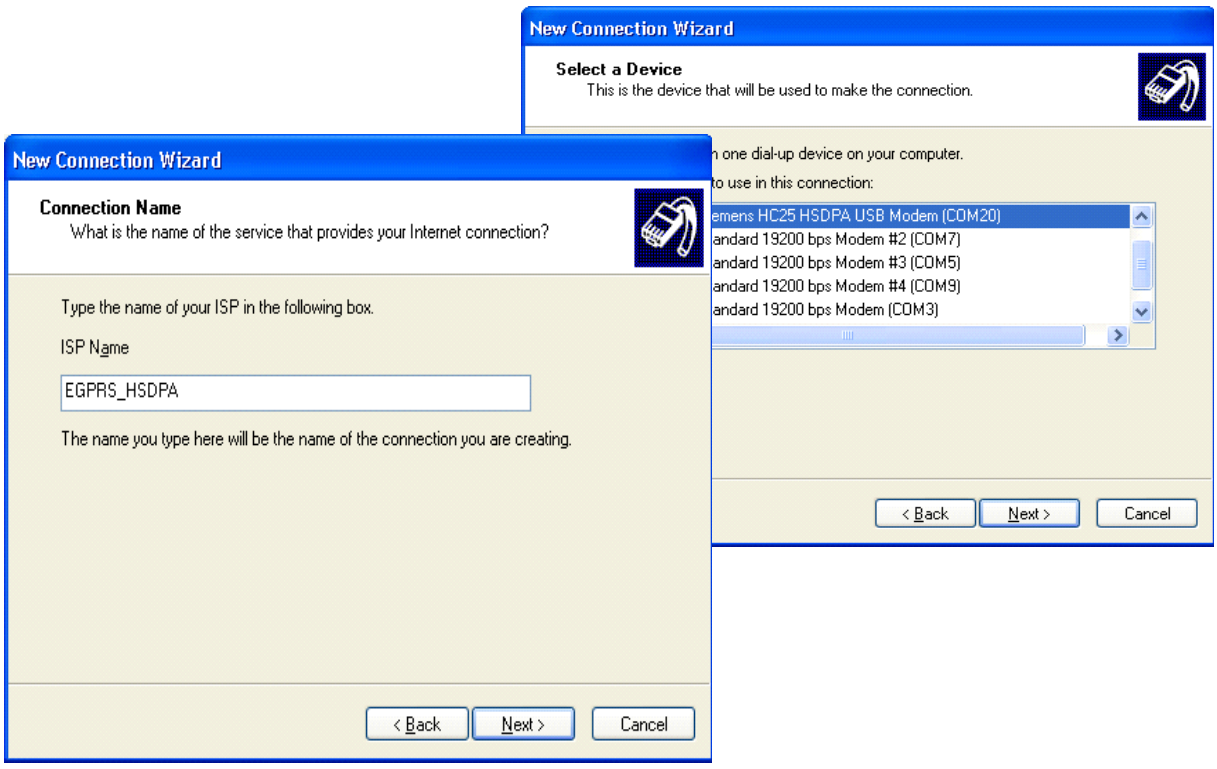
In any case, the *Network Connection Wizard* opens. Click *Next* to continue. Put a check mark on *Connect to the Internet* and click *Next*.


New Connection Wizard
Welcome to the New Connection Wizard
This wizard helps you:
Connect to the Internet.
Connect to a private network, such as your workplace network.
nnect to a wireless network, view wireless networks
ntinue, click Next.
< Back
Next >
Cancel
New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

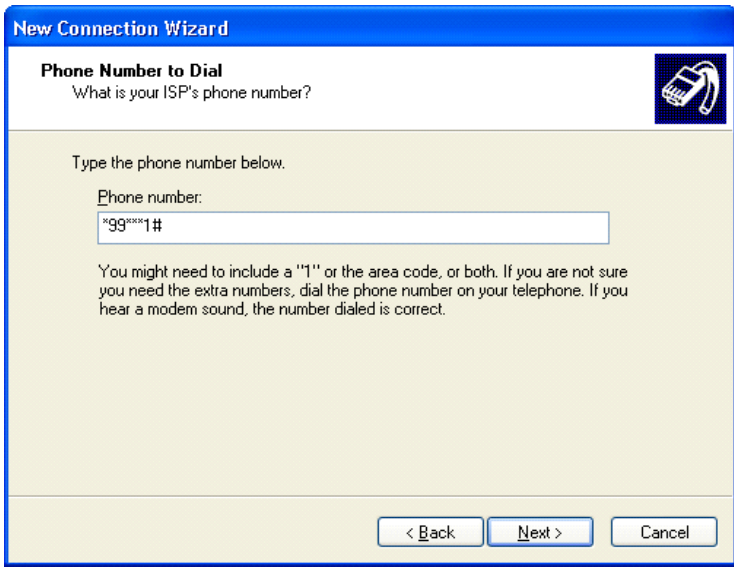
Select the option *Set up my connection manually* and click *Next*. Select *Connect using a dial-up modem* and click *Next*.


New Connection Wizard
Getting Ready
The wizard is preparing to set up your Internet connection.
How do you want to connect to the Internet?
Choose from a list of Internet service providers (ISPs)
Set up my connection manually
I got from an ISP
< Back
Next >
Cancel
New Connection Wizard
Internet Connection
How do you want to connect to the Internet?
Connect using a dial-up modem
This type of connection uses a modem and a regular or ISDN phone line.
Connect using a broadband connection that requires a user name and password
This is a high-speed connection using either a DSL or cable modem. Your ISP may refer to this type of connection as PPPoE.
Connect using a broadband connection that is always on
This is a high-speed connection using either a cable modem, DSL or LAN connection. It is always active, and doesn't require you to sign in.
< Back
Next >
Cancel

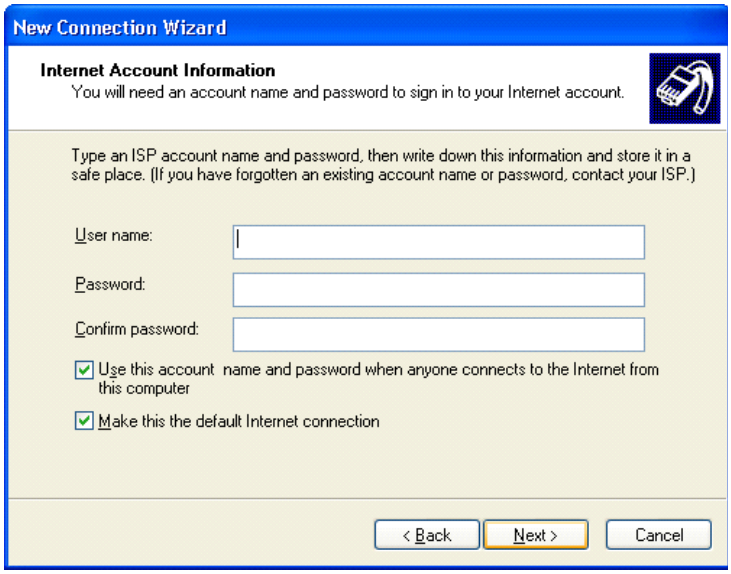
Select the modem that you want to use for the dial-up network connection. Click *Next* to continue. Type an appropriate *Connection name* and click *Next*.


New Connection Wizard
Select a Device
This is the device that will be used to make the connection.
one dial-up device on your computer.
use in this connection:
emens HC25 HSDPA USB Modem (COM20)
andard 19200 bps Modem #2 (COM7)
andard 19200 bps Modem #3 (COM5)
andard 19200 bps Modem #4 (COM9)
andard 19200 bps Modem (COM3)
< Back
Next >
Cancel
New Connection Wizard
Connection Name
What is the name of the service that provides your Internet connection?
Type the name of your ISP in the following box.
ISP Name
EGPRS_HSDPA
The name you type here will be the name of the connection you are creating.
< Back
Next >
Cancel

In the *Phone number* box, put the dial string *99***1# commonly used to access the GPRS network. Note: The number "1" added before the hash determines that the first PDP context shall be used. The number must be identical to the <cid> value set with AT+CGDCONT (see Section 3.7).


New Connection Wizard
Phone Number to Dial
What is your ISP's phone number?
Type the phone number below.
Phone number:
*99***1#
You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.
< Back
Next >
Cancel

Depending on the network, you may be required to put a User name and a *Password* for the dial-up network connection. If not required, you may leave all boxes empty. Click *Next* and, in the resulting dialog, click *Finish*.


New Connection Wizard
Internet Account Information
You will need an account name and password to sign in to your Internet account.
Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)
User name:
Password:
Confirm password:
Use this account name and password when anyone connects to the Internet from this computer
Make this the default Internet connection
< Back
Next >
Cancel

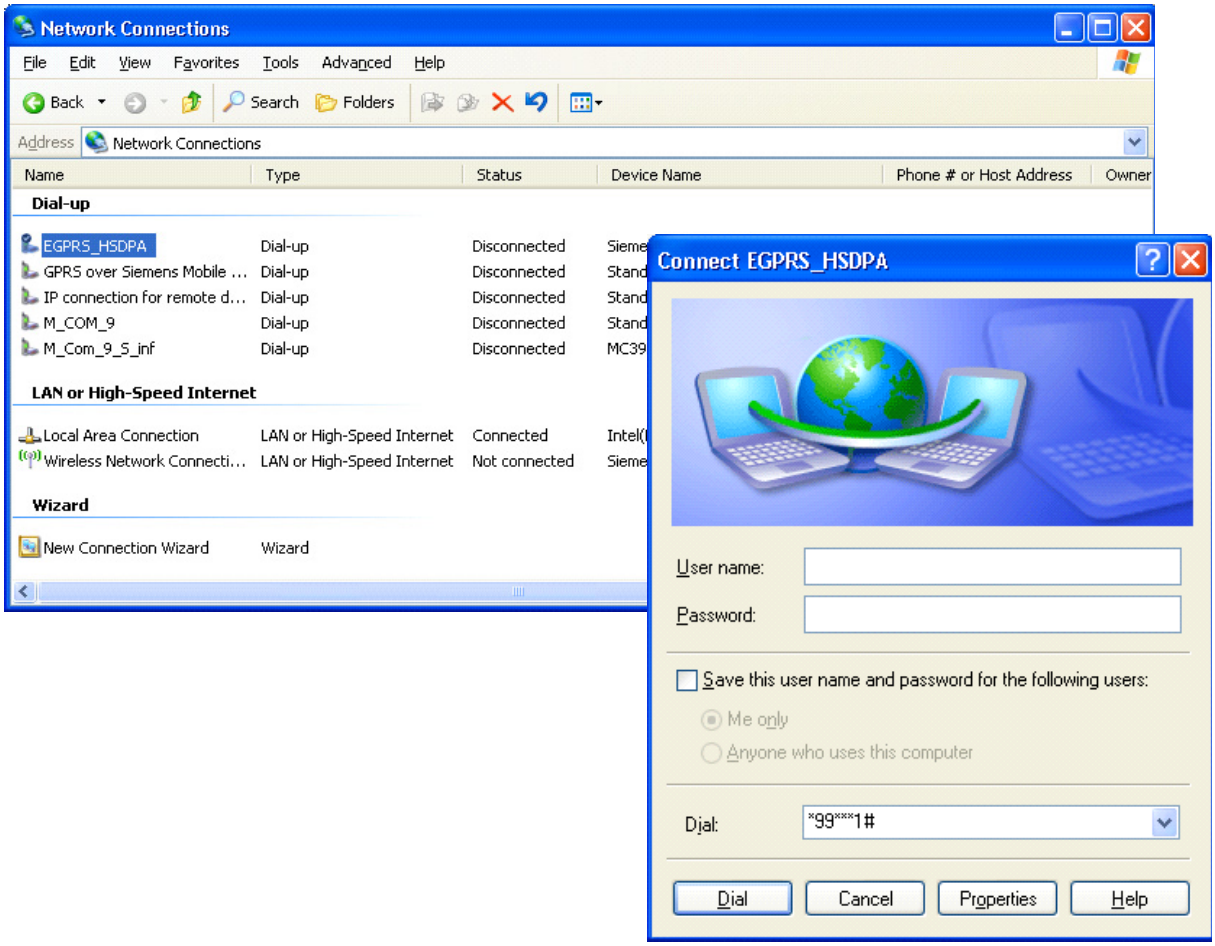
This will cause the *Connect…* dialog to appear (screen is shown in Section 4.1.2). Yet, at this moment, it is recommended that you press *Cancel* in order to check, and if necessary, to configure the dial-up network connection as described in Section 4.1.2.

New Connection Wizard
Completing the New Connection Wizard
You have successfully completed the steps needed to create the following connection:
EGPRS_HSDPA
Make this the default connection
Share with all users of this computer
Use the same user name & password for everyone
The connection will be saved in the Network Connections folder.
Add a shortcut to this connection to my desktop
To create the connection and close this wizard, click Finish.
< Back
Finish
Cancel

4.1.2 Configuring a Dial-up Network Connection

Every newly created dial-up network connection should be configured before using it to establish a PPP connection.

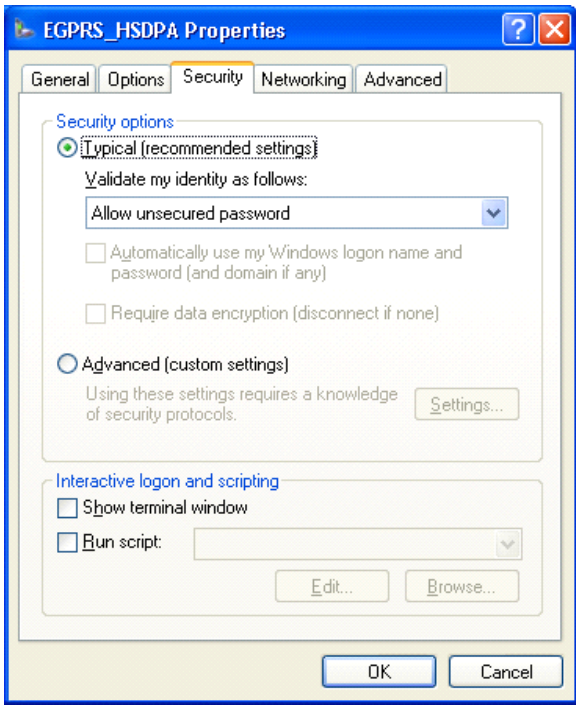
Open the *Control Panel*, double-click *Network Connections*, select the dial-up network connection you want to configure. In the resulting *Connect…* dialog, press the *Properties* button.



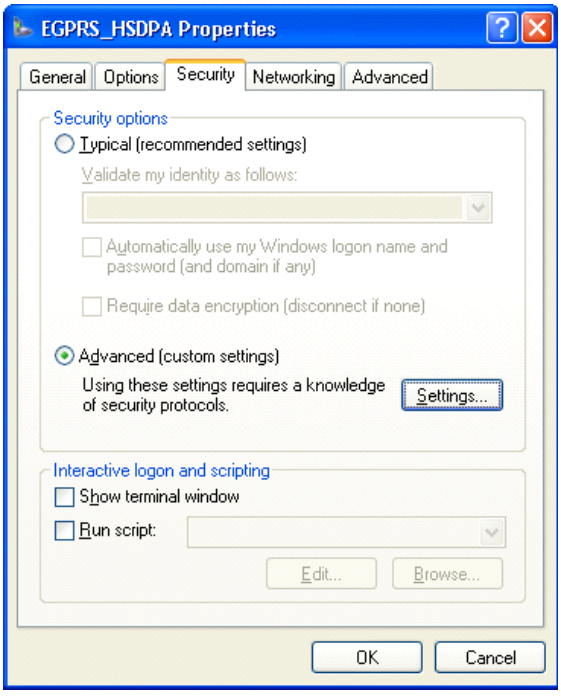
On the *General* tab, select the modem you want to configure. The correct dial string *99***1# should already be given, if entered before in the *Phone number* box when the dial-up network connection was created (see Section 4.1.1).

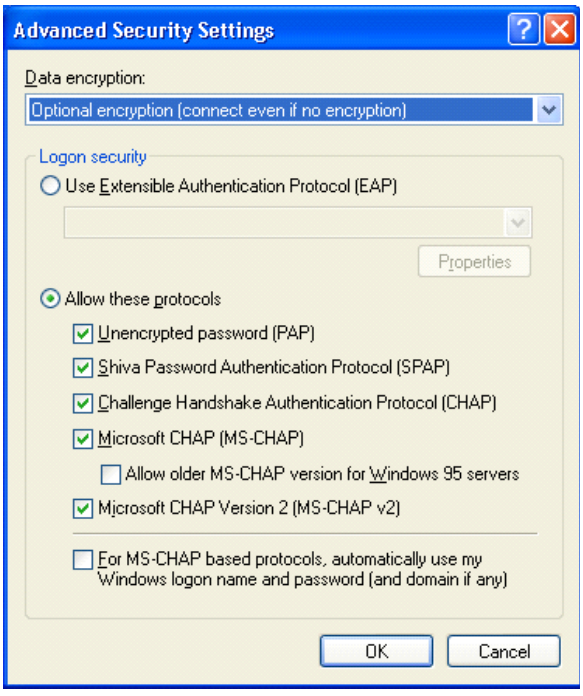
Select the *Security* tab to verify or edit authentication options for PPP connections.

By default, MS Windows XP enables the option *Typical* with unsecured passwords for the commonly used but unsafe PAP authentication method. As this is the minimum level of security supported in all networks the setting usually enables the subscriber to make a connection, though at the expense of security.



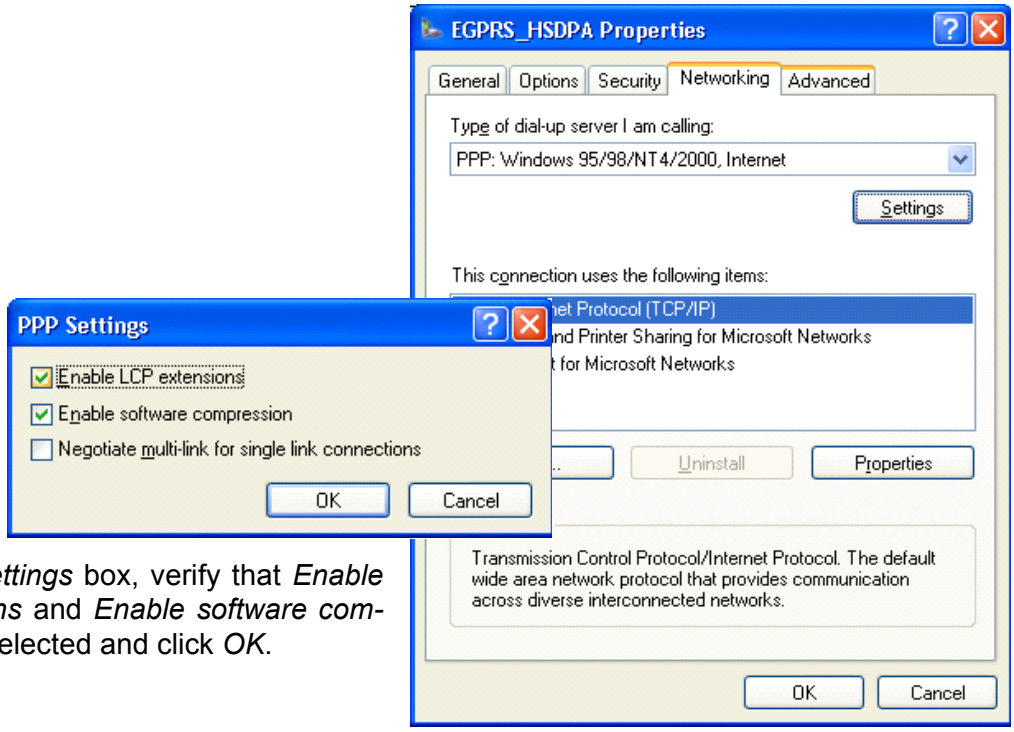
Many network operators apply more secure authentication methods for PPP connections, such as CHAP. For access to these networks, activate the *Advanced (custom setting)* option and press the *Settings* button. On the resulting *Advanced Security Settings* property page, enable / disable the authentication protocols according to the information provisioned by your service provider.




Advanced Security Settings
Data encryption:
Optional encryption (connect even if no encryption)
Logon security
Use Extensible Authentication Protocol (EAP)
Properties
Allow these protocols
Unencrypted password (PAP)
Shiva Password Authentication Protocol (SPAP)
Challenge Handshake Authentication Protocol (CHAP)
Microsoft CHAP (MS-CHAP)
Allow older MS-CHAP version for Windows 95 servers
Microsoft CHAP Version 2 (MS-CHAP v2)
For MS-CHAP based protocols, automatically use my Windows logon name and password (and domain if any)
OK
Cancel

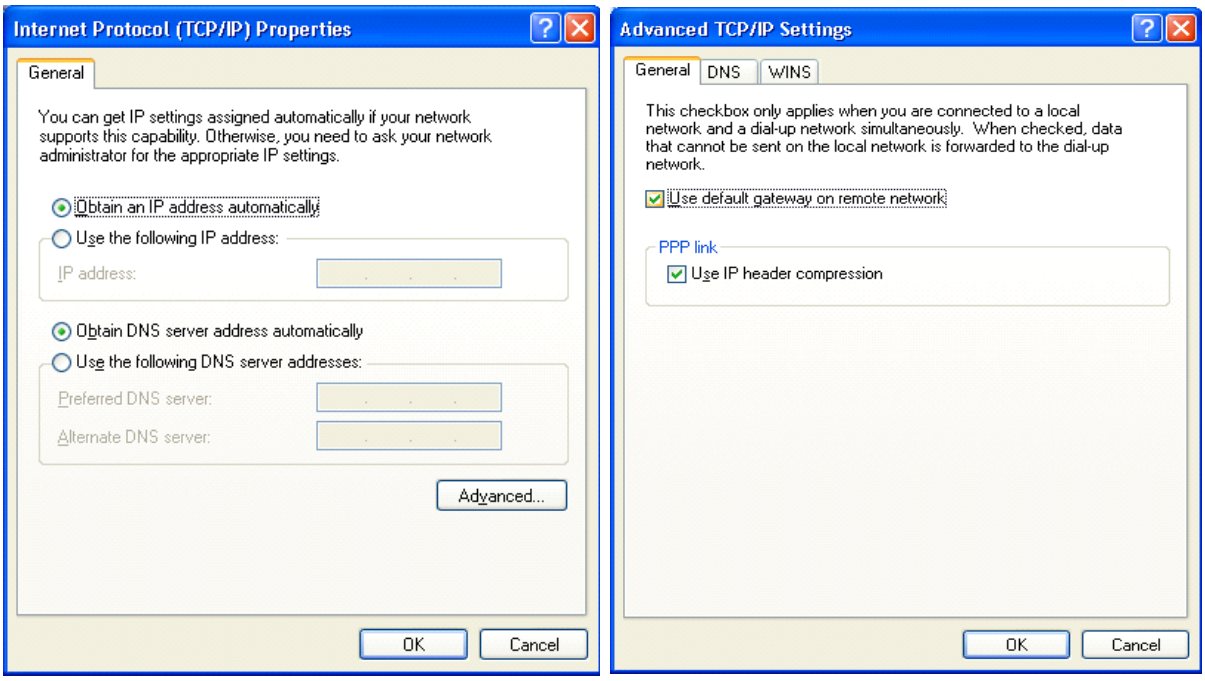
Note: If an attempt to connect to a HSDPA or GPRS network fails, check that the authentication protocols are properly set.

On the *Networking* tab, the default settings are acceptable in most cases: The drop-down menu shows *PPP: Windows 95/98/NT/2000, Internet* for the type of dialup server as default.



In the *PPP settings* box, verify that *Enable LCP extensions* and *Enable software compression* are selected and click *OK*.

Select the *Internet Protocol (TCP/IP)* on the *Networking* tab and press the *Properties* button to go to the *General* page. In most cases, it is sufficient to accept the default settings: *Obtain an IP address automatically and Obtain DNS server address automatically*.
Otherwise, you have to select the options *Use the following IP address / Use the following DNS addresses* and specify the IP addresses provisioned by your network operator.
The *Advanced* button opens a further property page where you can set your preferences when working in a local network and a dial-up network at the same time.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel
Advanced TCP/IP Settings
General
DNS
WINS
This checkbox only applies when you are connected to a local network and a dial-up network simultaneously. When checked, data that cannot be sent on the local network is forwarded to the dial-up network.
Use default gateway on remote network
PPP link
Use IP header compression
OK
Cancel

5 Appendix II

5.1 Configuring DSB75 Support Board and Adapter Board

This section refers to the DSB75 Support Board and the adapter board needed to mount a HC25 module onto the DSB75 Support Board.

The focus is on the configuration of several switches you may be required to change for use with HC25. A detailed description of the DSB75 Support Board is given in [12].

Please check that all slide switches (S100 - S103) on your adapter board are set as shown in Figure 5.

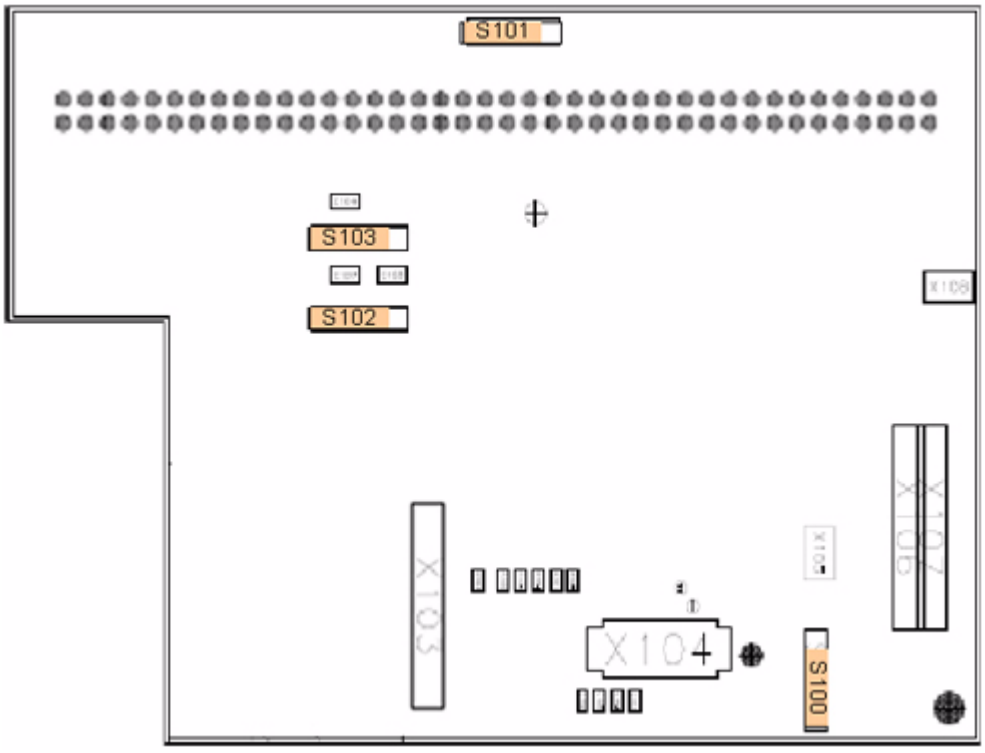


Figure 5: Adapter board - switch settings

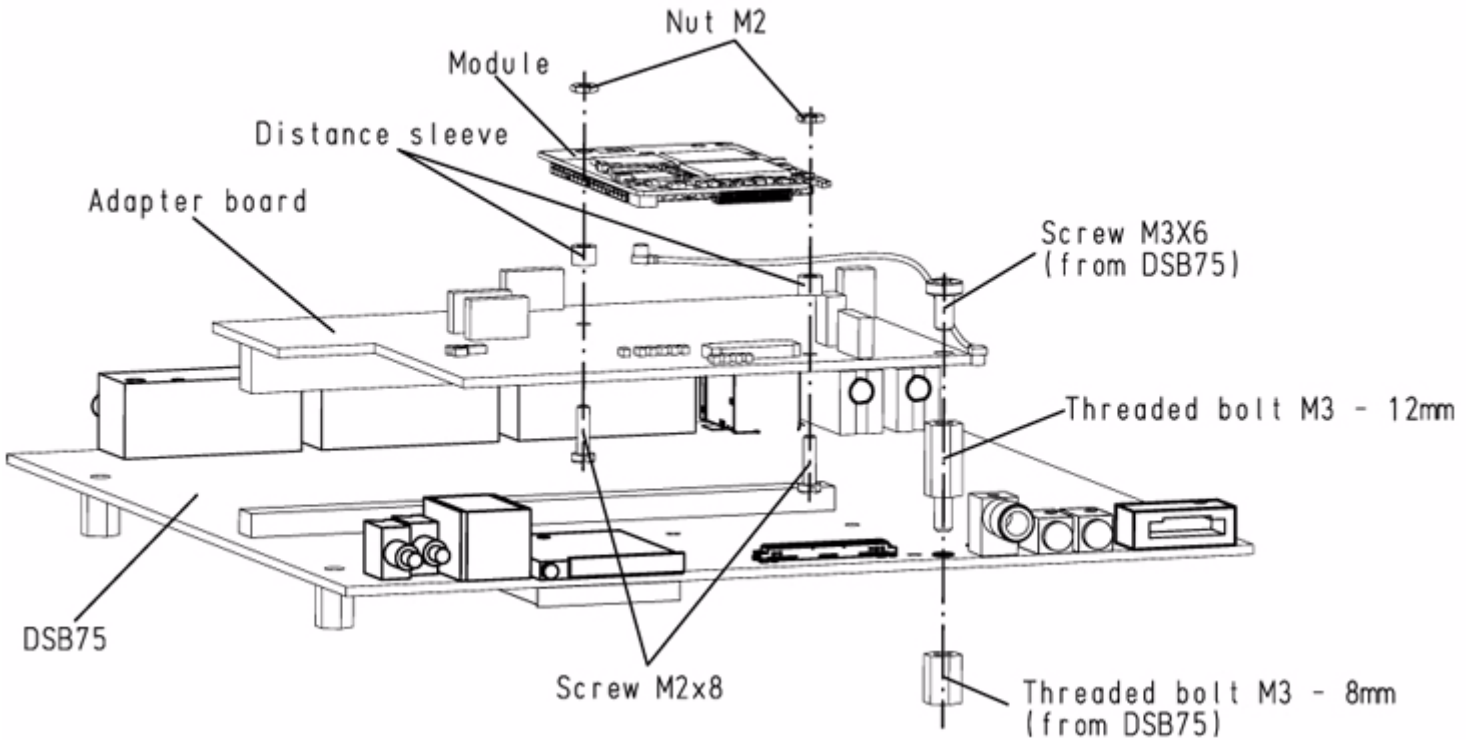


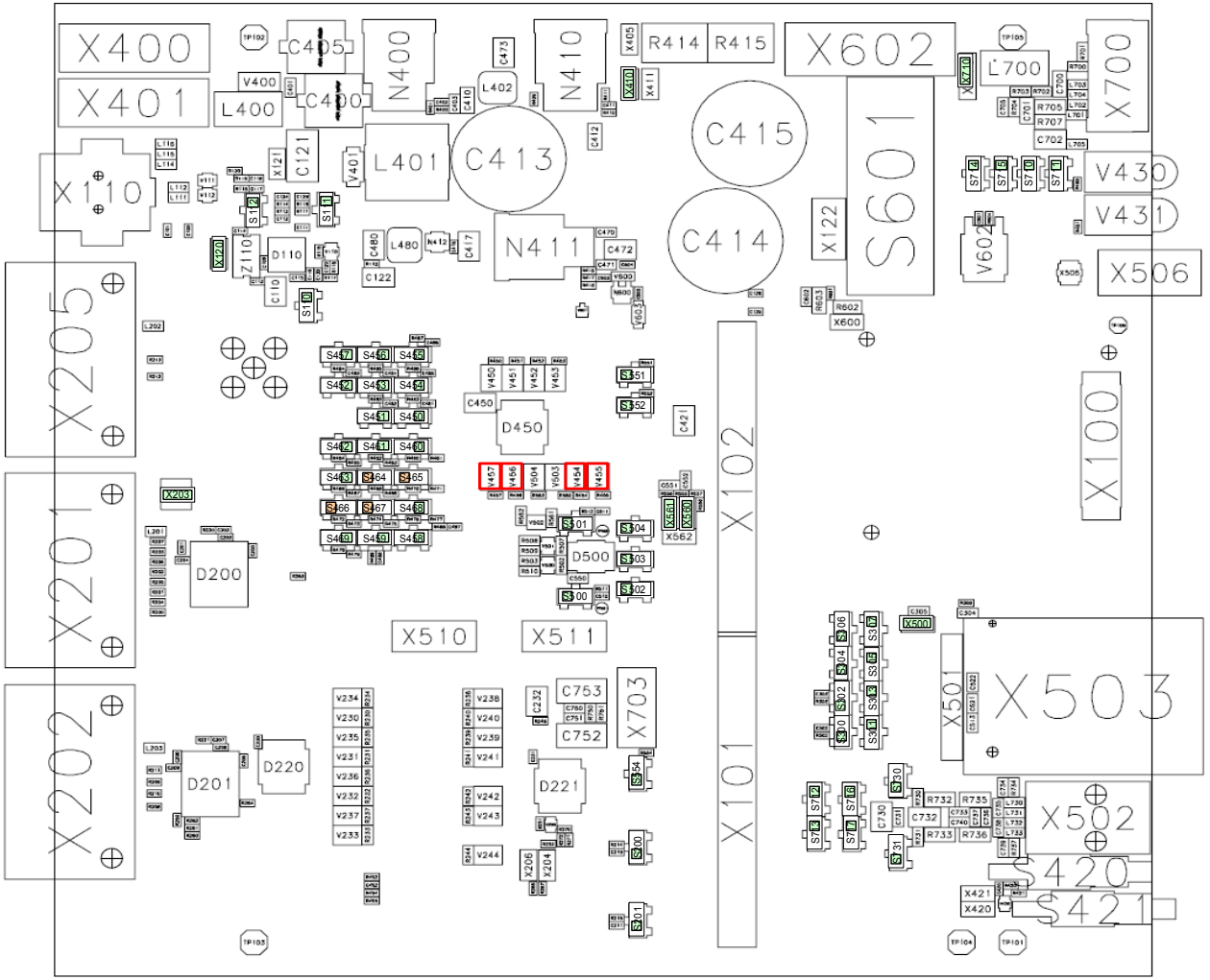
Figure 6: Mounting HC25 to DSB75 (exploded view)

X400 = power supply connector (red) for 9V - 15V
X401 =GND (black)

X110 = USB connector

X201, X202, X205: Do not use

X101, X102 = 80-pin header for adapter board



V430 = yellow LED (HC25 on)
V431 = green LED (DSB75 on)

X505 = Hirose U.FL
X506 = SMA connector

X100: Do not use

X503 = SIM card holder

X502 = Audio western jack

X420 = EMERG_OFF
X421 = IGT

Figure 7: DSB75 Support Board - switches, connectors, LEDs (overview)

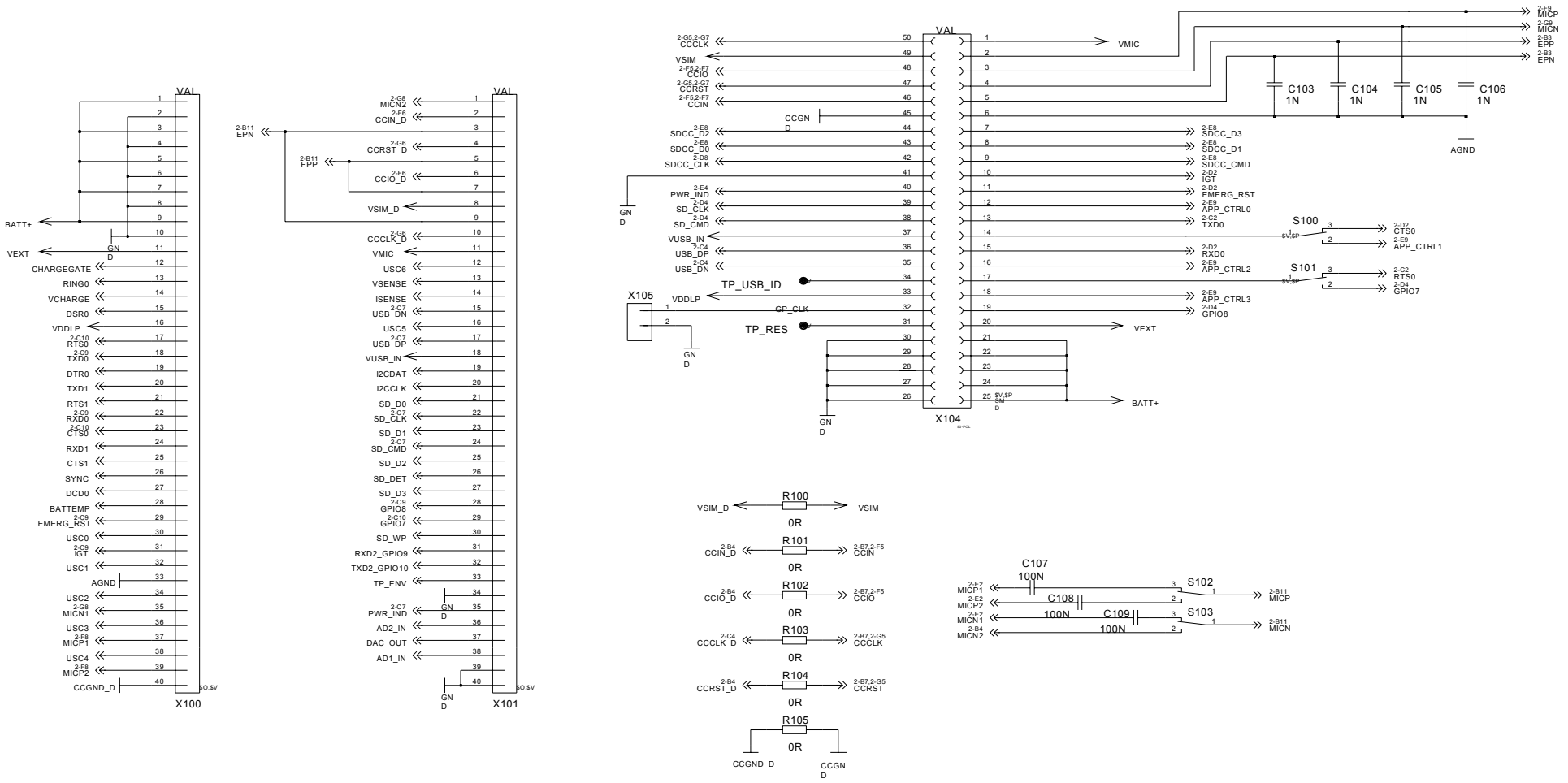


Figure 8: Adapter board schematic

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